THE EFFECTS OF SITUATED COGNITION ACADEMIC EFFICACY AND INTRINSIC MOTIVATION ON EDUCATION STUDENTS LEARNING OF RECIPROCAL TEACHING

By

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IN MEMORIAM

This dissertation is dedicated to the memory of my brother Manuel Enrique Pulido (1965-1996) who may have been taken away before this dissertation began but whose life and philosophies will continue to inspire me

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This study investigated the effects of an instructional method based on the tenets of situated cognition versus a lecture-discussion method of instruction on education students' learning of the reciprocal teaching instructional strategy. Academic efficacy and intrinsic motivation were also included in this study as predictors for students' performance on the outcome measure. Prior to the onset of treatment, the participants' academic efficacy and intrinsic motivation was measured using the MSPSE and the MSLQ respectively. The participants, 156 undergraduate education students enrolled in required education courses were taught the reciprocal teaching instructional strategy via one of the two instructional methods. Following the instruction, the participants were tested on their knowledge of the strategy using the Reciprocal Teaching Test (RTT), which consisted of a factual section and an applied section. Overall, the situated

cognition group performed better on the RTT than the lecture-discussion group. These students were able to learn in an environment more similar to the classroom environment in which the strategy will ultimately be used, as well as accurately transfer knowledge to novel real-life scenarios. Results with regards to the lecture-discussion method of instruction, found that these students had a higher mean on the factual section of the RTT. This finding indicates that reciprocal teaching knowledge for the factual items could be acquired employing either of these instructional methods, with the lecture-discussion method being a better choice. However, applied knowledge is best acquired using the situated cognition method. Thus, the implication for this finding is whether the intention is to measure knowledge using factual questions, or applied questions. If factual information were to be tested then the lecture-discussion method of instruction would be as good of method to use or even better than the situated cognition approach. However, if the intention were to have students acquire information that can later be applied in a real-life context, the situated cognition method of instruction would be more likely to achieve that goal. Academic efficacy proved to be a significant predictor of students' scores on both sections of the Reciprocal Teaching Test (RTT), whereas intrinsic motivation did not.

CHAPTER I
INTRODUCTION

Statement of the Problem

Many students experience problems utilizing knowledge and skills in the intended contexts that were acquired via formal learning (Brown, Collins, & Duguid, 1989; Choi & Hannafin, 1995). This problem occurs because schooling normally consists of traditional or formal classroom learning experiences in which knowledge is largely composed of facts that are isolated from the contexts in which they derive meaning (The Cognition and Technology Group at Vanderbilt, 1990). Knowledge taught in this way is highly decontextualized and simplified and often promotes understanding that is rigid and incomplete (Billet, 1996). Furthermore, instructional methods used in formal or traditional educational settings often have students acquiring concepts and skills that do not necessarily transfer to other contexts or to everyday life (Nunes, Schliemann, & Carraher, 1993; Saljo & Wyndhamn, 1990). Brown, Collins, and Duguid (1989) argue that this occurs because knowledge and skills in traditional educational settings are operationalized and taught differently from how students are expected to use them in real life. Thus, the problem becomes how to teach students in ways that are more likely to exhibit greater degrees of transfer to the target context. In the preservice teacher training curriculum, the likelihood that information will transfer to the intended context is of great concern since future educators are expected to be able to use and apply what they learned in their education programs in their future classrooms

Hattie, Biggs and Purdie (1996) argues that teaching of knowledge other than for simple mnemonic performance should be in context, using tasks that promote a high degree of learner activity and that are within the same domain as the target content. Similarly Garner (1990) suggests that the context of the instruction should be treated as a variable rather than a nuisance so that the conditions under which the instructional context affects learning and transfer may be studied Thus in order for instruction to better promote learning and transfer the role of context in learning and the role of the learners as active participants in their own immediate and future learning must be considered (Brown et al 1989)

An approach to instruction and learning that accounts for the learner and the context in which the instruction is taking place is situated cognition The situated learning or situated cognition perspective claims that learning and knowledge are the dynamic by products of unique relationships between the individual and the environment (Greeno & MMAP Project Group 1997) This perspective suggests that knowledge is "situated" in the context in which it is constructed and that the transfer and use of knowledge is affected by the context in which learning took place (Brown et al 1989) Consequently supporters of situated cognition assert that an individuals learning is aided by context and thus learning can be promoted by providing meaningful contexts and relating instruction to real-life experience (Carr Johanassen Litzinger & Marra 1994)

Research has supported the notion that the transfer of knowledge or skill is influenced by situational factors that are present during learning (Carr et al., 1984; DeLoache, 1986; Garner, 1990). The learning situation contains contextual cues that are also present in the retrieval situation and can be used by the learner to aid retrieval. Thus, persons learning under a situated cognition model of instruction should benefit from the use of context as a condition that enhances the transfer of information (Lave, 1988).

Though a number of theoretical and ethnographic works have been done in the area of situated cognition (Brown et al., 1989; Greeno, 1989, 1997; Greeno & The Middle School Through Applications Project Group, 1997, 1998; Lave, 1988; Rogoff & Lave, 1984), there has been little research conducted which leads to empirical support for the tenets proposed by the theory (Kirshner & Whitson, 1998). Furthermore, there have been few empirical studies that have explored the comparative effectiveness of situated cognition and a lecture-discussion method of instruction, in which fewer contextual cues are present (Choi & Hannafin, 1995).

The Cognition and Technology Group at Vanderbilt (1990) has conducted comparisons between traditional instruction and anchored instruction, a type of instruction based on situated cognition. They have supported anchored instruction as an instructional method that provides advantages to learning over traditional instruction. Anchored instruction uses videodisk technology to simulate real-world problem-solving environments in which students learn to solve problems (The Cognition and Technology Group at Vanderbilt, 1990).

Despite its positive findings this instructional format poses several limitations (Griffin 1995) Videodisk technology is expensive and therefore of limited availability to the typical public institution Relatively few examples of this method have been developed and the typical classroom teacher does not have the skills to develop or customize this instruction to fit his or her classroom needs (Griffin 1995) Finally students engaged in anchored instruction are observers of the context in which learning takes place and not actually taking part in that context (Griffin 1995)

An instructional method that addresses the concerns posed by anchored instruction and is based on situated cognition is that of cognitive apprenticeships Cognitive apprenticeships allow the learner to engage in experiences in the classroom that are representative of everyday life (Brown et al 1989) A study by Griffin (1995) compared the effectiveness of traditional or conventional instruction to an instructional method based on situated cognition as a cognitive apprenticeship (Griffin 1995) Griffin (1995) found that fourth grade students who learned to read maps by a situated cognition method of instruction, in which more contextual cues were available scored better on a performance assessment of map skills than students who learned to read maps by conventional instruction Students in the situated cognition group also performed as well as the students in the conventional instruction group on a written assessment of map skills A review of the literature found there were no studies that compared a situated cognition method of instruction to a traditional method of instruction at the college level

Researchers have noted the need for studies that evince and support situated learning (Brown et al , 1989 Choi & Hannafin 1995, The Cognition and Technology Group at Vanderbilt, 1990 Griffin 1995 Kirshner & Whitson 1998) Kirshner and Whitson (1998) argue that if situated cognition is to legitimately intermix cognitive and situative assumptions further research is needed that investigates the boundaries between individuals and situations and the use of knowledge by individuals within different communities of practice Griffin (1995) discusses the importance of further research in situated cognition to determine the types of skills and the types of learners for which situated learning is best suited The present study will be conducted to investigate the effects of an instructional method based on situated cognition in comparison to traditional classroom instructional techniques on learning and transfer in the preservice teaching curriculum

Reciprocal Teaching

Effective teaching of instructional methods in the preservice teaching curriculum is essential if preservice teachers are to gain sound understanding of how to employ such methods in their future careers Reciprocal teaching is a metacognitive strategy that is commonly taught at the preservice level (Griffin & Griffin 1998 Hart & Speece 1998 Hodge Palmer & Scott 1992 Palincsar & Brown 1986, Rich & Pressley 1990 Reed 1988 Rosenshine & Meister 1994 Rosenshine Meister & Chapman, 1996 Rush & Milburn 1988 Speece MacDonald Kilsheimer & Krist, 1997) Reciprocal teaching is designed to encourage active participation in lessons and improve student text comprehension (Palincsar & Brown, 1987). The basic elements of reciprocal teaching are teaching four comprehension-fostering strategies: clarifying, predicting, questioning, and summarizing. These are taught in the context of a supportive dialogue among teacher and students (Speece et al., 1987).

Research on the effectiveness of reciprocal teaching as a method of teaching to enhance students' achievement in reading comprehension has yielded positive results (Coley, DePinto, Craig, & Gardner 1993; Griffin & Griffin 1998; Grimes, 1996; Hart & Speece, 1998; Hodge et al., 1992; Lysynchuk, Pressley, & Vye, 1990; Marks, Pressley, Coley, Craig, Gardner, DePinto, & Rose, 1993; Palincsar, 1986; Palincsar & Brown 1986; Long & Long, 1987; Reed, 1989; Rosenshine & Meister, 1994; Rosenshine & Meister, 1991; Rush & Milburn, 1988; Speece et al., 1997). A search of the literature located only one study that examined the effect of instructing preservice teachers on reciprocal teaching (Mosenthal, Schwartz, & MacIsaac, 1992). Mosenthal, Schwartz, and MacIsaac (1992) examined reciprocal teaching as an instructional strategy that helped preservice teachers develop a better concept of comprehension from text and how to teach it. This study found that preservice teachers had a positive experience with the reciprocal teaching procedure and that it enhanced their understanding on the difficulties that learning a new metacognitive strategy can pose for their future students. These results were found using an instrument designed for the study. However, this study did not provide comparisons between the reciprocal teaching method of instruction and the traditional method of instruction; therefore, the study did not examine the setting as a variable that may affect the transfer of strategy instruction. In addition, there were no studies found that examined the effects of an instructional method based on situated cognition on the learning of reciprocal teaching as an instructional strategy.

Self Efficacy and Motivation

Self-efficacy refers to the beliefs concerning one's capabilities to learn or perform behaviors at designated levels (Bandura, 1977, 1978, 1989, 1993). Bandura (1977) hypothesized that self efficacy affects one's choice of activities, effort, and persistence. Thus, students with high self-efficacy are more likely to accomplish a task despite encountering difficulties. Since the introduction of the concept in 1977, researchers have supported the notion that the judgments of capability an individual brings to a specific task are accurate predictors of the performance that results from that task and mediate the influence of other determinants of that performance (Bandura, 1977, 1978, 1989, 1993; Pajares, 1995; Pajares, 1996; Vrugt, Langereis, & Hoogstraten, 1997; Schunk, 1996). In general, researchers have established that self-efficacy beliefs are correlated with other self-beliefs and with academic changes and outcomes and that self-efficacy is an effective predictor of related academic outcomes (Pajares, 1995). Teaching reciprocal teaching using a situated cognition model provides students with the opportunity to practice the strategy in a context more similar to that in which they will ultimately be expected to use it in. Students in the situated cognition model also receive immediate feedback on their performance in the group. Because of the effects of self-efficacy on academic performance, self efficacy will be used as a variable in studying the effects of an instructional method based on situated cognition on the learning of reciprocal teaching.

Self efficacy beliefs are important influences on motivation and behavior because they in part mediate the relationship between knowledge and action (Pajares, 1995). To some extent, perceptions of capability and situational influences play a role in most theories of motivation; therefore, it would be of further interest to examine the predictive effects of motivation on the study of the effects of situated cognition on the learning of reciprocal teaching.

Purpose of the Study

The purpose of this study is to compare the effectiveness of an instructional method based on the tenets of situated cognition versus the lecture-discussion method of classroom instruction, in which fewer contextual cues are available, on education students' learning of reciprocal teaching. Students' motivation for their education courses and their perceived academic self-efficacy will also be examined in relation to their learning of reciprocal teaching as an instructional technique. Preservice teachers' learning of reciprocal teaching, motivation, and self-efficacy will be examined under the two instructional methods to determine under what conditions the learning of reciprocal teaching is more likely to transfer to the posttest measures, as well as to assess the generalizability of reciprocal teaching as a strategy. A group consisting of preservice teachers attending the University of Florida enrolled in any of the required courses for the program will serve as the subjects.

Definition of Terms

For the purpose of this study specific terms are operationally defined as follows

Situated method of instruction refers to using the tenets of the situated cognition perspective to teach reciprocal teaching Learning of the instructional technique will take place in the classroom with a lecture and overheads In addition students will be performing the strategy in small groups with each student being able to take the role of teacher and direct the discussion Thus for the situated cognition group reciprocal teaching will be learned in a social and physical context similar to the context in which the strategy is commonly used Therefore the way in which the situated cognition group learns the strategy provides more of the contextual cues that are present in the real-life situation and that are simulated in the testing situation

Traditional lecture-discussion method of instruction refers to the lecture-discussion method of instruction of reciprocal teaching Using this method of instruction learning of reciprocal teaching will take place in the classroom using a lecture and overheads Students will discuss the strategy in small groups Consequently for the lecture-discussion reciprocal teaching will be learned in a social and physical context that is less similar to the context in which the strategy is commonly used and which provides fewer contextual cues Hence the way in which the lecture-discussion group learns the strategy provides fewer of the contextual cues that are present in the real-life situation and that are simulated in the testing situation

Academic self-efficacy as measured by responses on the items pertaining to academic self efficacy taken from the Multidimensional Scales of Perceived Self Efficacy (MSPSE) (Bandura 1989) refers to the belief that students possess about their academic capabilities

Student motivation as measured by responses on the motivation portion of the Motivated Strategies for Learning Questionnaire (MSLQ) (Garcia & Pintrich, 1996) refers to motivational components that affect learning and performance (a) intrinsic goal orientation (b) extrinsic goal orientation, (c) task value (d) control of learning beliefs (e) self-efficacy for learning and performance This scale has been slightly modified to measure education students motivation for their education courses which makes the scale more relevant for this study

The Significance of the Study

It is important that research be conducted to examine the effects of instructional methods using situated learning academic self-efficacy and student motivation on the instruction of reciprocal teaching as an instructional strategy Having a better understanding of the conditions under which different instructional methods advance learning and transfer furthers the improvement of educational programs Moreover even though researchers call for studies to be conducted in the area of situated cognition (Brown et al , 1989 Choi & Hannafin 1995 The Cognition and Technology Group at Vanderbilt 1990 Griffin 1995 Kirshner & Whitson 1998) there were no studies found that examined the effects of an instructional method based on situated cognition on the learning and transfer of a teaching strategy taught to preservice teachers. Although motivation and self-efficacy have been studied with regard to academic achievement, and with regard to metacognitive strategy acquisition, the effects of motivation and self-efficacy on the learning of reciprocal teaching as an instructional strategy taught to preservice teachers have not been studied. Examining preservice teachers' learning of reciprocal teaching as an instructional strategy is significant since it is likely that these future teachers will be using this strategy in their classrooms. Thus the present study would serve to incrementally advance the knowledge regarding the effects of two different instructional methods, academic self-efficacy, and student motivation on the learning and transfer of reciprocal teaching.

Theoretically, this study is important in contributing to the literature on situated cognition. Furthermore, this study is also significant in an applied sense. The relation among instructional method, amount of learning, motivation, and self-efficacy is important when considering the future careers of the learners in question. As preservice teachers, their goal is to be equipped with the tools to meet the needs of all of their future students. Comprehension of instructional methods that will be beneficial to students with reading comprehension problems is crucial. Thus, a method of instruction that improves the learning and the likelihood of transfer of reciprocal teaching would be important in a teacher education program.

A possible relationship between teaching instructional techniques in situated settings and generalized performance is certain to have implications with regards to knowledge acquisition. Furthermore, if an interaction is found between different levels of motivation and academic self-efficacy and type of instructional method, then there will be implications regarding the types of students for which the two different methods of instruction work best. This study would lay the foundation for future research that could expand the results of this study and use the model of situated cognition as an instructional method with a different population, and using a different instructional strategy.

Limitations of the study

A limitation of this study is that the setting in which the instructional strategy is being learned, while similar, is not identical to the setting in which the instructional strategy will be used. For the strategy to be taught in exactly the same setting as it is used in real life, it would have to be taught in a classroom with children that have reading problems. However, since this study is attempting to use situated cognition as an instructional method that can be incorporated and used in the typical college classroom, modifications are necessary. Thus, this study is attempting to make comparisons between an instructional method that teaches the strategy in a context that is more similar to the context in which the strategy is used in versus an instructional method that involves less use of contextual cues. Assessment of knowledge of the strategy is also being done in a way that can be used in a typical college classroom by using questions that provide multiple real-life scenarios of reciprocal teaching rather than having to provide actual multiple real-life experiences. Thus, results are limited to discussing the effects of using one instructional method over the other for transfer to the posttest measure Furthermore results are also limited to arguing for the degree to which the information learned in the classroom under the two different instructional methods will transfer to real-life scenarios This study is also not being done with a large population or over a long period of time Thus results cannot be used to predict the likelihood of transfer over a longer period of time for that would require a longitudinal study of the subjects being followed into their professions and assessing their level of transfer to a novel situation over time

CHAPTER II
REVIEW OF LITERATURE

In this section the following literature will be reviewed The first section will examine the literature on the role of context in learning followed by the literature on situated cognition The second section will examine the literature on reciprocal teaching both as a metacognitive strategy and an instructional strategy Finally, the third section will review the literature on student motivation and academic self-efficacy

The Role of Context

"Concern with contextual variation in skills has been influenced by cross-cultural observations that people who have difficulty with a task embodying a particular skill in the laboratory can spontaneously evidence the skill in everyday activities" (Rogoff & Lave, 1984 p 2) Observations that children's capabilities appear quite different in their familiar environments than in the laboratory has increased researchers concern with the role of context (Ceci & Bronfenbrenner 1985 DeLoache 1986 DeLoache Cassidy & Brown 1983 DeLoache & Brown 1983) Ceci & Bronfenbrenner (1985) studied children performing a time-monitoring task and observed that children behaved differently in the laboratory setting than in the home setting Children were asked to bake cupcakes or to charge a motorcycle battery in either a laboratory or in their own homes Children were instructed to monitor their time using a wall clock Children were also invited to make unlimited use of a Pac Man video game while they waited for the cupcakes to bake or the battery to charge Results of setting effects showed that children engaged in less overall clock-watching in the home setting than in the lab setting However children in the home setting engaged in more strategic clock watching as the deadline approached whereas the children in the lab environment anxiously monitored their time throughout the entire experiment Thus, Ceci and Bronfenbrenner (1985) suggested that children were more likely to use a complex, time-conserving strategy in the familiar environment of the home than in the unfamiliar environment of the lab

Similarly De Loache Cassidy and Brown (1985) observed differences in toddlers use of memory strategies as a function of setting The subjects were 16 children between 18 and 23 months of age that were randomly assigned to perform the memory task in either the laboratory or the home setting Results showed that the toddlers in the laboratory setting engaged in the target behaviors (i e verbalizing pointing, looking approaching or attempting to retrieve the toy) differentially in the lab setting than in the home setting More than three times as many target behaviors occurred in the lab setting than in the home setting De Loache Cassidy and Brown (1985) discuss that situating a memory for location task in an unfamiliar environment made the children uncertain of their ability to remember the location of the toy In order to keep the information about the location of the toy alive in the laboratory setting the children seem to need to periodically reestablish contact with the location of the hidden toy and thus exhibited the target behaviors

De Loache and Brown (1983) investigated children s use of contextual cues present in the environment to aid their memory for the location of a hidden object in their home The participants were 18 children between the ages of 22 and 29 months that were exposed to the memory task in their own homes All children were to retrieve a hidden toy from a particular location in their home Results indicated that children s performance on locating the hidden object was especially good when the memory task is embedded in the natural environment De Loache and Brown (1983) attribute these results to the distinctive information available in the home setting that is intrinsic to the hiding place of the object and that the child associates with the relevant hiding place In sum studying the behaviors of children in the one setting and not the other would have led to different conclusions about children s capabilities and neither conclusion would have been wholly accurate

Likewise research on individuals functioning in everyday settings suggests that people think and behave quite differently in everyday settings versus formal and controlled environments (Choi & Hannafin 1995 Guberman & Greenfield 1991 Lave 1988 Puckett & Reese 1993 Rogoff & Lave 1984) Everyday cognition researchers use the concept of "just plain folks" (JPFs) to describe people s everyday activities (Choi & Hannafin 1995 Lave 1988 Puckett & Reese 1993 Rogoff & Lave 1984) They contend that JPFs develop general strategies for reasoning intuitively resolving issues and negotiating meaning in contrast to students who are typically involved in precise well defined problems formal definitions and symbol manipulations (Choi & Hannafin

1995) Formal learning emphasizes that knowledge be abstract, systematic context-free and symbolic so as to be sufficient to be applied across diverse problems (Choi & Hannafin 1995) However in everyday circumstances people tend to apply practical strategies that are efficient and opportunistic rather than formal methods (Lave 1988 Lave & Wenger 1991)

Lave (1988) observed that the mathematical activities and problem solving of "just plain folks" in a weight-watchers class were embedded in the context of the ongoing activity Nine new members of the weight-watchers program were observed over a period of weeks as they incorporated new measurement practices into meal preparations All of the participants demonstrated an average of 60-70% on the general math test, which required them to use mathematics that was more difficult than was involved in preparing meals according to the Weight Watchers program Yet the dieters differed sharply in their uses of arithmetic in the kitchen As the dieters became more familiar with the program they made fewer calculations with the food scale and the measuring devices while maintaining accuracy and losing weight Dieters took advantage of the sociocultural structuring of the settings of the dieting activity making it possible to find equivalents for and eliminating measuring activities (Lave 1988)

Lave Murtaugh and de la Rocha (1984) found similar findings with respect to setting and the use of knowledge with adult grocery shoppers The participants were 25 expert grocery shoppers varying in age from 21 to 80 in income from $8 000 to $100 000 per family and in education from eighth grade to an M.A. degree All participants were native speakers of English and had attended public school in the United States The measure was a comparative oral dimension that involved solving arithmetic practices within the context of the supermarket Results of the observations indicated that adults used a combination of mental calculations, approximations and features of the physical environment to help them make a decision of what product to buy The school-taught tools of problem solving such as arithmetical computations were sporadically used and the paper-and-pencil algorithms taught in school were never used In sum studying the learning and the use of strategies in only one context does not provide an accurate description of the conditions under which learning and transfer of learning are more likely to occur

Situated Cognition

Research has indicated that strategies and strategic activity is situated and that when transfer takes place it must be cued primed or guided (De Loache & Brown, 1983, De Loache et al 1985 Griffin 1995) It is proposed that cognitive skills are general tools that cannot be used in the same ways with different knowledge domains rather they must be adapted to fit the domain in which they are utilized (Lave & Rogoff 1984) Furthermore "thinking is intricately interwoven with the context of the problem to be solved" (Rogoff 1984 p 2) Garner (1990) suggests that context be treated as a variable and that a theory of setting would propose that when context varies the nature of the strategic activity often varies as well

A theory that has recently been proposed which involves context in explanations of cognitive development is situated cognition Situated cognition proponents contend that learning is situated in physical and social contexts and that cognition can be considered a relation involving a person in a situation (Greeno 1989) Brown Collins and Duguid (1989) who first introduced the term of situated cognition argue that students often acquire decontextualized knowledge that they cannot use in everyday life because they lack the entrance into the community and the culture that uses such knowledge Learning in context is often referred to as a process of enculturation (Brown et al 1989 Greeno 1987 1989 Greeno & MSMMTA Project Group 1997 Van der Pal & Eysink 1999)

Drawing from the work of Vygotsky situated learning can be understood as the appropriation of knowledge in practice according to socioculturally evolved means of means of mediation and modes of activity (Harley 1993) Situated cognition stems from sociocultural theory and Vygotsky s contextual theory In Vygotsky s contextual theory the pathway to expertise is associated with immersion in a particular social situation over time with individuals acquiring skillful knowledge and the ability to engage successfully in the discourse norms and practices of the particular community of practice (Vygotsky 1962) A community of practice can be understood as a set of relations among persons activity and world over time and in relationship with other tangential and overlapping communities of practice (Lave & Wenger 1991) In sociocultural theory learning is viewed as the appropriation of socially-derived forms of knowledge knowledge that is constructed through the exchange between persons acting and the social and cultural circumstances in which they act

(Billet 1996) Thus many supporters of situated cognition argue that cognitive development and learning should not be conceived of as individual independent, or inner but as the result of experiential support that nurtures and guides our ability to think (Greeno & The Middle School Mathematics Through Applications Project Group 1997 1998 McLellan 1994)

According to the situation cognition perspective knowledge should not be considered a self-sufficient entity that is theoretically independent of the situations in which it was learned Instead knowledge under situated cognition is viewed as inseparable from the activities by which it is acquired and tested from the practices of the community of fellow language users Problem solving is inseparable from the embodied activity in which it arises and individual change or learning is considered inseparable from change in the social relationships in which people participate (Greeno 1997 1998)

In formal settings the context in which learning took place or the context in which the knowledge will be used in is considered distinct from what is learned (Brown et al 1989) The primary concern of schools often seems to be transfer of decontextualized knowledge across situations (Brown et al 1989) In traditional classrooms teaching is conceived as transmitting knowledge from the teacher to the learner and thus learning is assessed using decontextualized models that emphasize the "correct" or "acceptable" answer (Biggs 1995) School itself is the context and it promotes the search for knowledge of the "correct" ways of thinking or solving problems rather than unique understanding (Bredo 1994) In contrast instruction based on situated cognition is designed so that students learn in appropriate social and real-life contexts and acquire knowledge though authentic activity and social interaction (Gerstein & Baker 1998 Schell & Black 1997 Van der Pal & Eysink 1999)

Harley (1993) argues that school based instructional tasks tend to emphasize activities in which errors are expected whereas in everyday life error free performance is most emphasized due to the "real" consequences that errors may produce The transfer of knowledge across settings is the emphasis of formal educational methods that promote the learning of abstract abilities that students can generalize and use (Lave 1988)

Advocates of the situated cognition perspective contend that the activity and the context in which the activity takes place in are fundamental to understanding how individuals learn and under what conditions they will transfer learning (Brown et al 1988 Brown & Duguid 1994) Research that has studied situational factors in relation to the transfer of information suggests that the transfer of knowledge or skill is influenced by situational factors that are present during learning (Lave Murtaugh & de la Rocha 1984 Nunes Schliemann & Carraher 1993) Nunes Schliemann and Carraher (1993) found similar results with respect to situational factors influencing children's performance of a task Nunes Schliemann and Carraher (1993) performed two studies on children s ability to apply previously learned knowledge to a novel setting In the first study five children all street-vendors with a mean age of 11 2 and ranging in level of schooling from first to eighth grade were given tests that measured their mathematical ability The tests were performed in two ways informal and formal with the formal part being subdivided into items with context and items without context Children performed better overall on the informal tests which were conducted in the natural setting of the street than on the formal tests of mathematics which occurred in the classroom Also all the children performed better on the items that provided context in the form of word-problems with 73 7% correct responses as opposed to 36 8% correct responses on the items without descriptions of context. In the second study Nunes Schliemann and Carraher (1993) attempted to replicate their earlier findings of a difference between street and school mathematics but in the same situation and with a larger sample size The subjects were 16 third graders with a mean age of 11 5 years randomly selected from two state-supported schools in Brazil Children were given three types of measures (a) simulated shop (b) word problems, and (c) computation exercises across two conditions oral and written Overall children s scores on the oral examinations were higher across the three types of measures with the higher scores found in the simulated shop Thus differences were still observed between problems that simulated street mathematics and problems that were strictly computational

A learner is often referred to as an apprentice that is enculturated into authentic practices through activities and social interaction in a cognitive apprenticeship (Brown et al 1989 Greeno 1987 1989 Greeno & MSMMTA Project Group 1997 Van der Pal & Eysink 1999) Studies that have examined the situated cognition approach to instruction have indicated that there are differences in the conditions under which individuals learn and use the information that they learned (Brenner 1989 Griffin 1995 Griffin & Griffin 1995 Kumer & Voldrich 1994 Palincsar 1986 Saljo & Wyndhamn 1990) Saljo & Wyndhamn (1990) studied collaborative problem-solving in the school context with 45 students aged 12-13 years Students enrolled in a mathematics class in the sixth form of the Swedish comprehensive school were asked to work in small groups to establish the postage rate for a letter using a letter-scale and a postage table. Results indicated that most of the groups had difficulty solving the problem and that the groups achievement or time spent on the problem was not significantly related to mathematical ability However the setting in which this study took place a school classroom during a mathematics lesson proved to be interfering with the students abilities to solve the problem. In other words students were observed consistently attempting to use problem-solving modes that required the use of mathematics however mathematics was not needed to achieve the correct answer For example some students attempted to multiply and divide when these were not relevant strategies for solving this problem Thus the researchers conclude that the setting was not external to the problem but poses a sense of giving background that is integral to solving it.

Brenner (1988) demonstrated significant cognitive gaps related to the concept of money in everyday life versus the school settings with the children in the everyday setting using the knowledge of money as a tool to enable purchasing rather than money being a symbol like all others taught in school The participants were five elementary age children whom were followed from the beginning of kindergarten through the end of second grade Findings indicated that children's conceptions of money differ in the real setting versus the school setting. In the school setting, children realize that money is treated as a symbol system to be acted upon like other symbol systems taught in school. Contextual cues are not present in the school setting, other than the pictures of the coins, which aid in answering the questions correctly. However, in the real life setting children view money as a tool and shopping as an activity that has a goal and a general script for pursuing that goal. Children know that they will receive help with computations through their social environment (i.e. cheap candy is located on the counter while more expensive candy is on another display) and thus look like adept problem solvers in the face of insufficient knowledge. Results support several authors contention (Brown et al., 1989; Lave, 1988) that school is just another context, which has its own set of conventions rather than being a decontextualized situation.

Griffin (1995) compared two instructional methods for effectiveness: one based on the tenets of situated cognition and the other based on traditional classroom instruction. Fourth-graders were instructed on map-skills in either a traditional classroom setting, in which students learned map-skills using worksheets and books or in a situated setting in which students were exposed to map-learning skills in the same way that maps are used in the real setting. Students in the situated setting were instructed in small groups and were able to physically find a location using a map and to navigate several different routes in search of a specific location. Students in the traditional instruction group were presented with a lecture and guided instruction on map-skills. All students were tested on three performance measures (a) written assessment (b) performance assessment paralleling the instruction the situated cognition group received, (c) performance assessment in a physical environment that was different from the physical location where the situated cognition instruction took place The students in the situated cognition group performed better on the performance assessment in which they were given a map and had to physically navigate a route and travel to each of the marked locations This type of assessment paralleled the instruction they received The situated instruction group also performed just as well as the traditional instruction group on the written assessment. There were no significant differences found between the performances of the two groups on the performance assessment in a different environment than where the situated cognition instruction took place (Griffin, 1995) Griffin (1995) concludes that "situated learning seems to be a particularly good arena in which to explore issues relevent to transfer because of the emphasis placed on the context of the learning experience in this approach"(p 84) Further "the underpinnings of situated cognition make studies utilizing this theory pertinent settings in which to investigate the context-bound nature of transfer"(Griffin, 1995 p 84) Those results were replicated and extended by examining long-term effects of situated learning and cognitive style on the learning of map skills (Griffin & Griffin, 1996)

Griffin and Griffin (1996) introduced some variations in this study by testing all the students on their knowledge of map skills in the form of a pre-test and by conducting the activities indoors as opposed to outdoors like the previous study There were no significant differences among the situated cognition group and the traditional instruction group on the immediate performance assessment They found an interaction between the students score on the pretest and their performance on the delayed performance assessment For those students who demonstrated higher performance on the pretest the instructional methods were equally effective However students who scored low on the pretest did not benefit from the situated cognition instruction as much as from the conventional instruction Possibly because students' who scored low on the pretest had an inadequate knowledge base There were significant differences among the situated cognition group and the traditional instruction group on the immediate performance assessment with the traditional instruction group scoring significantly higher Nevertheless, there were no significant differences among the situated cognition group and the traditional instruction group on the delayed written assessment. The pretest covariate had a significant effect on both written assessments with students that scored high on the pretest also scoring high on the written assessments There were no effects found for cognitive style The researchers speculate that allowing the students in the conventional instructional method to work in pairs may have had an effect on their learning since peer tutoring has shown to have positive effects on learning Another speculation is that having the students perform the navigation of maps indoors may have been constraining and may have limited the learning and the use of the skills taught by the cognitive apprenticeship

In traditional classrooms, students are frequently given tasks that lack relevance and meaning to the student because the task is detached from the student's experience (Carr et al., 1998). Instead, greater emphasis needs to be given to what is learned in the classroom and what is needed outside of the classroom (Brown, et al., 1989). This can be achieved through the use of authentic tasks, which provide meaningful activities that enable students to learn based on experience (Brown et al., 1989). Authentic tasks can be understood as the ordinary practices of the culture. Their role in education is to provide meaningful activities that enable students to learn, based on first-hand experience, the appropriateness of a method or strategy (Brown et al., 1989).

An approach to instruction that uses authentic activities as instructional methods is anchored instruction (Moore, Lin, Schwartz, Petrosino, Hickey, Campbell, Hmelo, & The Cognition and Technology Group at Vanderbilt, 1994; The Cognition and Technology Group at Vanderbilt, 1990; Young, 1993). Researchers using and designing anchored instruction situate instruction within an authentic context by creating environments that allow exploration by students and teachers and enable them to understand the kinds of problems experts encounter (The Cognition and Technology Group at Vanderbilt, 1990; Moore et al., 1994; Winn 1993; Young, 1993). The context of anchored instruction can vary from an actual work setting, to a highly realistic or "virtual surrogate" of the actual work environment in the classroom, to an anchoring context such as a video or multimedia program (The Cognition and Technology Group at Vanderbilt 1993; Van der Pal & Eysink 1999). The Young Sherlock Project (The Cognition and

Technology Group at Vanderbilt, 1990) uses stories to anchor the learning of language arts and social studies in children Results found that students in the anchored group outperformed the non-anchored group on measures of problem-solving acquisition The Jasper Series is another anchored instruction project by The Cognition and Technology Group at Vanderbilt (1990) that is designed to develop and evaluate a series of videodisc adventures whose primary focus is on mathematical problem-solving Findings indicate that after being exposed to the treatment children that scored poorly on measures of problem identification and formation improved on the same measures and that learning was transferred on similar tasks

After a through review of the literature only two studies were found that compared the effects of an instructional method based on situated cognition and an instructional method based on traditional or conventional instruction (Griffin 1995 Griffin & Griffin 1996) However these studies were conducted with elementary school children and their acquisition of map skills There were no studies located that compared the effects of these two methods with adults although one could speculate that adults may be able to bridge the disparity between the two instructional methods better than children Therefore there is a gap in the literature The present study will examine the effects of an instructional method based on situated cognition and an instructional method based on traditional instruction on college students learning of an instructional strategy

Reciprocal Teaching

One of the many tasks of student teachers is to master the concepts and strategies of their discipline so that when in their profession they can be applied when appropriate. Implementation of acquired knowledge and strategies in the classroom setting require teachers retain the knowledge that was acquired in their preservice formal education. As teachers, they must strive to meet their students' academic needs.

An instructional strategy that is often taught to preservice teachers in their educational programs is reciprocal teaching. Reciprocal teaching is an instructional approach that features guided practice in applying concrete and simple strategies to the task of text comprehension (Rosenshine & Meiser 1994). Reciprocal teaching was first introduced by Palincsar (1986) as a metacognitive strategy that would lead to improved reading comprehension through the use of cognitive strategies such as summarization, question generation, clarification, and prediction. Most studies regarding reciprocal teaching use it as an instructional strategy to improve the reading comprehension of at-risk students (Griffin & Griffin, 1998; Hart & Speece, 1998; Hodge, Palmer & Scott, 1992; Rosenshine & Meister, 1994).

The goal of reciprocal teaching is to improve students' skill in independently comprehending text. There are two primary features of reciprocal teaching: (a) instruction on four comprehension strategies and (b) dialogues between the teacher and students focusing on planning, implementing, and evaluating the strategies during the discussion of text. The metacognitive strategies used in reciprocal teaching are summarizing questioning clarifying and predicting (Hart & Speece 1998) As a method of reading instruction reciprocal teaching has proven effective for students with reading problems (Al-Hilawani 1993, Coley DePinto Craig & Gardner 1993 Grimes 1996 Hart & Speece 1998, Hodge et al 1992 Lysynchuck et al 1990 Marks et al 1993 Mosenthal et al 1992 Rush & Milburn 1988 Palincsar & Brown 1984 Rosenshine & Meister 1991 1994 Speece et al 1997)

Most studies of reciprocal teaching have been conducted with children (Coley et al 1993 Grimes 1996 Marks et al , 1993 Lysynchuck et al 1990 Rosenshine & Meister 1991 1994 Speece et al 1997) Palincsar and Brown (1984) are responsible for developing the reciprocal teaching instructional strategy Their study examined reciprocal teaching with 24 seventh-graders that met the criteria of adequate decoders but poor comprehenders To meet the adequate decoder criteria a student had to read grade-appropriate texts at a rate of at least 80 words per minute with two or fewer errors They met the criteria for poor comprehenders if their standardized reading comprehension scores were at least twp years below grade level and if their baseline performance was below 40 % correct on the experimental task The students were divided into four groups with six students in each group Two of the groups received instruction and two of the groups served as control groups Results of this study indicated that students responded very well to the reciprocal teaching intervention gradually performing more and more like the adult model and becoming better able to take their turn as dialogue leader Questions regarding the main idea of a passage increased from 54% to 70% correct in total. The quality of summaries improved with detailed summaries declining from 25% to 4%. Incomplete, unclear, and detailed responses declined from 19% to 10%. Furthermore, the students also improved dramatically on their daily assessment passages. All students reached asymptote within 12 days at the level of 70%-90% correct which is comparable to the scores of average comprehenders who acted as control subjects. All of the students maintained asymptotic level for at least eight weeks. This study was replicated by a subsequent study conducted by Palincsar and Brown (1984). In the second study, 21 students mostly in seventh-grade were exposed to the reciprocal teaching instructional technique. Unlike the students in the first study whose intervention was in the form of student dyads and conducted by the experimenter, students in study two were exposed to the reciprocal teaching technique by their teacher and in larger, naturally occurring groups. Results in the second study replicated those of the first study. The effect of the reciprocal teaching intervention was reliable, durable, and transferred to tasks other than the training task. Moreover, all of the teachers that participated in the study indicated that they would add reciprocal teaching to their instructional repertoire. Finally the students also responded favorably to evaluations of the procedure on a post-training questionnaire.

A study by Coley, DePinto, Craig, and Gardner (1993) described the effects of teachers employing reciprocal teaching in first, fourth, and seventh grade classes. These authors reported that reciprocal teaching resulted in instruction that provided a rich context for enhancing comprehension and active discussion across the three grade levels Marks Pressley Coley Craig Gardner DePinto and Rose (1993) examined three teachers adaptations of the reciprocal teaching technique in their elementary middle-school and high-school classes to develop a model of reciprocal teaching that could be implemented in all classrooms Findings suggest that a reciprocal teaching model can be developed that is effective in meeting the individual teacher's goal of increasing student participation in group dialogue and reading comprehension Grimes (1996) proposed a model of reciprocal teaching in literature study groups for use with a culturally diverse population The model presents strategies and opportunities for the students to adapt events in history to everyday life situations

Lysynchuck Pressley and Vye (1990) studied reciprocal teaching with fourth and seventh graders nominated by their teachers as poor comprehenders Students in the reciprocal teaching group were exposed to 13 sessions of reading comprehension using reciprocal teaching Students in the control group were also poor comprehenders but they were not exposed to the reading strategy Results found that students in the reciprocal teaching group had a greater increase in their reading comprehension scores than the students in the control group

In a study by Speece MacDonald Kilsheimer and Krist (1997) three preservice teachers adopted reciprocal teaching using children with learning and behavioral disabilities They found that although the children differed with respect to age skill level and cultural background, reciprocal teaching proved successful in increasing the amount and the quality of verbal dialogue in reading comprehension lessons Rosenshine and Meister (1991) reviewed nineteen experimental studies that used reciprocal teaching to improve students comprehension of text Studies were classified according to type of reciprocal teaching instruction used the type of student used and the type of outcome measure used Studies used reciprocal teaching either during the instruction in the form of models hints, and prompts or by explicitly teaching reciprocal teaching before the dialogue began Studies either used (a) all students in a single grade or classroom (b) students at grade level in decoding but below grade level in comprehension or (c) students who were below grade level without regard to decoding ability The type of outcome measured in the studies was either (a) standardized reading tests (b) experimentor-developed tests or (c) both types of tests were used Significant and non-significant differences were equally reported by studies in each of the classifications However in the type of outcome measure used there was a strong effect favoring the use of experimenter-developed tests over the use of standardized tests across all types of students and types of methods When standardized tests were used to assess comprehension, the median effect size favoring reciprocal teaching was 32 but when experimenter-developed comprehension tests were used the median effect size was 88 The authors conclude that based on the favorable record of research they recommend that such instruction become part of ongoing practice

The findings of this review were replicated and extended by Rosenshine and Meister (1994) in a similar review of the literature on reciprocal teaching

Rosenshine and Meister (1994) reported favorable results for the use of the technique with children in the reciprocal teaching groups outperforming those children in the control groups by over three-fourths of a standard deviation on tests of reading comprehension The authors also discuss that there are three instructional approaches for teaching the cognitive strategies in reciprocal teaching that may help improve their comprehension The first approach involves all instruction to take place during the reciprocal teaching dialogues and in response to specific student problems In the second approach the strategies are taught explicitly before beginning the dialogues Finally in the third approach the cognitive strategies are first taught explicitly before beginning the dialogues and then the teacher guides the students as they practice applying the strategy The teacher gradually withdraws this support as the students become more competent The authors discuss that all three approaches have yielded significant results particularly when experimenter-developed comprehension tests have been used The authors recommend that it may be useful to study which specific instructional elements in these approaches are most effective, and develop theoretical explanations to account for their effects

Investigations using reciprocal teaching with adults are limited (Al-Hilawani 1993 Hart & Speece 1988 Hodge Palmer & Scott, 1992 Mosenthal Schwartz, & MacIsaac 1992 Rush & Milburn, 1988) and vary with respect to type of participant comparison groups intensity of training and dependent variables examined Reciprocal teaching has been studied with respect to college students at risk for academic failure (Hart & Speece 1998 Hodge et al

1992) as a lecture method (Al-Hilewani 1993) and as strategy instruction to help undergraduate preservice teachers develop and teach text comprehension (Mosenthal et al. 1992) In a study by Hart and Speece (1998) community college students enrolled in a course for incoming freshman obtaining low scores on a reading comprehension test administered to all incoming students Two of the sections of this course were chosen with students remaining in the intact classes Students in the reciprocal teaching group received ten lessons one a week for ten weeks and instruction was delivered in two phases (a) introduction and modeling for two sessions and (b) small group practice and participation Students in the control group received cooperative group activities to enhance participants perceptions that they were engaging in an experimental treatment. Using published standardized measures of reading comprehension and learning strategies the reciprocal teaching group outperformed the comparison group on reading comprehension and strategy acquisition with differential benefits for poorer readers in the reciprocal teaching condition outperforming poorer readers in the traditional instruction group

Hodge Palmer and Scott (1992) compared reciprocal teaching instruction with traditional using at-risk college students enrolled in a required course for reading improvement in the first semester of their freshman year Participants in six intact classes were assigned to one of two conditions (a) reciprocal teaching group in which students received instruction modeled by the instructor and followed by small group practice twice a week for sixteen weeks or (b) traditional teaching group where students worked independently in textbooks and received corrective feedback. With respect to reading comprehension, students in the reciprocal teaching group scored significantly better than the traditional teaching group on the College Test and The Nelson-Denny Reading Test. The authors also tested the students on strategy acquisition using informal measures and found that the students in the reciprocal teaching group performed better than the traditional-instruction teaching group.

A study by Rush and Milburn (1988) examined the effectiveness of reciprocal teaching as a method of instructing students enrolled in a postsecondary occupational training program in diesel mechanics. Participants were randomly assigned to one of four groups: (a) whole group instruction and small group reciprocal teaching practice, (b) whole group instruction and independent reciprocal teaching practice, (c) reading tasks that did not involve reciprocal teaching, and (d) non-reading coursework. Results found differences favoring both of the reciprocal teaching groups over the control groups on the posttest, a published standardized test of reading comprehension immediately following the experiment. However, differences between the experimental and control groups disappeared when participants were tested five weeks later using an experimenter-designed measure. The authors contend that the effects of this instructional strategy format on reading comprehension and learning deserve further study.

Al-Hilawani (1993) compared reciprocal teaching to traditional instruction using 56 undergraduates enrolled in two sections of an introductory special education course. Thirty participants were assigned to the reciprocal teaching group and 28 participants were assigned to the lecture-method group   Students in the reciprocal teaching group were subdivided and paired randomly to form 15 subgroups in which students alternated by chapter who would serve as the teacher and who would serve as the student. Four class sessions were devoted to training and practicing in reciprocal teaching In which the students' were monitored and given assistance if needed   The lecture method group was instructed as a group with overheads to supplement the lectures   The groups were compared using a pre-and posttest in the form of a multiple-choice test covering the class material that the students had practiced in their respective groups   The groups were also asked their opinions about whether or not they liked practicing reciprocal teaching in classroom. Findings indicated that 70% of all the students liked the reciprocal teaching method of instruction   However significant differences among the two groups' means on their performance on the posttest measure were not found   Nonetheless the author speculates that lack of differences may have been due to the effectiveness of the instructor to communicate ideas regardless of the teaching method or to the inappropriate use of reciprocal teaching with the reading level of the students in the study   The author also suggests that based on the observations of the reciprocal teaching method it provided generation of real-life examples from the students as well as increased motivation with regards to the subject matter   Unfortunately neither of those variables was tested in the study

Mosenthal Schwartz and MacIsaac (1992) conducted a study on reciprocal teaching as an instructional strategy to help preservice teachers better develop the concept of comprehension and how to teach it. Two intact groups of preservice teachers enrolled in a methods course were divided into the experimental and control groups. Using material that was related to the content of the class, the reciprocal teaching group was divided into groups of four to six students that practiced reciprocal teaching while the course instructor provided modeling, feedback, and assistance. Data was collected in two forms: (a) transcripts of group discussions during the procedure, and (b) journal entries in which students reported their reactions to the procedure across the semester. The transcripts were meant to provide information on whether the groups could learn the rules of the teaching strategy and use it while socially constructing meaning from the paragraph being discussed. The journal entries were gathered to assess the students' interest in the strategy as a means of promoting comprehension from text and to document their experiences with the new strategy. Findings from the journal entries reported that most preservice teachers had a pleasant experience engaging in the strategy but that some reported difficulties and frustrations inherent in learning a new strategy. Authors concluded that becoming aware of their own anxiety towards the strategy would be important for preservice teachers' overcoming their anxiety and understanding their future students' reactions to the strategy. In addition, the authors discuss the importance of understanding the strategy if the preservice teachers are to properly implement the instructional procedure.

In sum, the research on reciprocal teaching as an instructional strategy used to improve reading comprehension has found that it can significantly affect performance. However, as an instructional strategy taught to preservice teachers, research on reciprocal teaching is limited to one study (Mosenthal et al., 1992). Due to the lack of studies on reciprocal teaching as an instructional strategy taught to preservice teachers, there is a gap in the literature. Examining conditions under which reciprocal teaching is learned and transferred would be significant to study when considering the importance of preparing preservice teachers to effectively implement instructional strategies in their future classrooms.

Student Motivation and Academic Self-Efficacy

Motivation as a variable in the study of academic achievement has gained the interest of many researchers. Motivation is the natural human capacity to direct energy in the pursuit of a goal. Student motivation has been conceptualized as a commitment to learning (Donald, 1999). Studies of elementary and middle school children have shown that students who believe that their schoolwork is interesting and important are cognitively engaged in trying to learn and understand the material (Pintrich & DeGroot, 1990; Pokay & Blumenfield, 1990). With college students the research has consistantly demonstrated that the motivational beliefs of college students predict their academic performance (Covington & Roberts, 1999; Paulsen & Feldman, 1999; Pintrich & Garcia, 1999).

Motivation is generally divided into two types: intrinsic and extrinsic motivation. Intrinsic motivation for learning is considered to be the desire to learn for the sake of understanding; extrinsic motivation is considered a desire to attain an external goal (Donald 1999) Research on intrinsic motivation and academic achievement has found that students who posses intrinsic motivation (a) value and have interest in a task (b) have high self-efficacy for learning beliefs and (c) are more likely to use metacognitive learning strategies (Pintrich & Garcia 1994) Although extrinsic motivation is associated with outside rewards it may be beneficial in the sense that it provides uninterested students with goals to become more cognitively engaged in a task (Pintrich & Garcia 1994)

The impact of student motivation on academic achievement has commonly been studied using several motivational constructs task value goal setting use of learning strategies self efficacy and test anxiety (Donald 1999 Griffin & Griffin 1998 Keller 1999 MacKinnon 1999 Paulsen & Feldman 1999 Pajares 1995 1996 Paris & Turner 1994 Pintrich & Garcia 1994, Schunk, 1991 1994 1996 Vrugt, Langereis & Hoogstraten 1997 Zimmerman Bandura & Matinez-Pons 1992)

Studies have examined the relationship between student motivation and academic achievement in the absence of self-efficacy A study by Pokay and Blumenfeld (1990) studied the relationship among motivation learning and strategy use The participants were 283 high school students enrolled in a geometry class The participants were asked to report their (a) perceptions of ability and value (b) expectancies for success in geometry (c) use of learning strategies and (d) motivation through items that assessed their mathematical self-concept at different times of the semester Students prior math grade was also reported Results with respect to strategy use found that the use of specific geometry strategies predicted initial achievement whereas general metacognitive strategies predicted later achievement The authors believe this finding suggests that students may be able to make effective use of general metacognitive strategies only after becoming skilled at the use of specific strategies With respect to motivational factors findings were varied Both early and late in the semester, motivation in the forms of expectancies of success was positively related to achievement. Early in the semester self-concept was predictive of strategy use but not predictive of early achievement Students with higher self concept used strategies less when compared to students with low self-concept. Thus these findings suggest that motivation based on immediate prior experience does not predict achievement in a new math course directly but does so indirectly thorough its relation to expectancies for success

Donald (1999) conducted a study on college students motivation and its relationship to higher-order learning Learning goals the author argues in post-secondary education include (a) problem solving, (b) synthesis and evaluation (c) written (d) oral and (e) independent working skills Students need to be aware of these higher-order learning goals in order to be responsible for their own learning (Donald 1999) The participants were 39 physics and engineering majors that were enrolled in the same coures The participants were asked to complete the Study Processes Questionnaire which measures deep surface and achieving motives and strategies Items measuring the participants extrinsic and intrinsic motivation came from the Motivated Strategies for Learning Questionnaires (MSLQ) Students were also asked to indicate their entering grade point average and their expected grade at the beginning and end of the semester The students final grade in the course was also obtained at the end of the semester Results found that there were differences in higher order learning according to major Physics students endorsed deep motives and strategies achieving motives and strategies more than surface motives and strategies Engineering students had a higher achieving motive than their deep motive but no significant differences between deep and surface motive or strategy Both engineering and physics students displayed greater intrinsic than extrinsic motivation Students scores for intrinsic motivation correlated significantly with deep motivation and strategies and with achieving strategies Results showed that there were changes over the term in learning motives and motivation At the beginning of the term both physics and engineering students displayed greater intrinsic than extrinsic motivation however at the end of the semester only the physics students displayed greater intrinsic motivation The engineering students at the end of the semester displayed equal intrinsic and extrinsic motivation and their main goal was to get a good grade rather than understand the subject matter which is crucial for higher order learning Although the study found that intrinsic motivation correlates with higher-order learning the relationship is not as strong as it was originally believed Further it was found that context and student preparation for the course had a greater effect on student achievement than motivation

MacKinnon (1999) examined the relationship of student motivation in problem-based learning Problem-based learning (PBL) is a type of learning that

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develops self-directed lifelong learners who can integrate knowledge think critically and work collaboratively with others on a complex ill-structured problem that they are expected to solve (MacKinnon 1999) The participants for this study were 300 university students in their second semester of a four-year professional degree program in speech and hearing sciences The program consisted of a traditional lecture-based curriculum in which the students were given an orientation session and two problems that would last five weeks Students were divided into groups and tutors monitored their functioning and served as facilitators Students were assessed in three ways (a) case reports submitted by each group describing the diagnosis and treatment plan for each problem as well as how their plans were derived. (b) three hour written final examination and (c) ungraded personal learning journal Results were categorized by four elements (a) community which involved relationships among students and teachers (b) ownership the combination of autonomy and personal control of learning, (c) relevance of the course the content and the PBL learning method (d) empowerment which provides students with opportunities for challenge and mastery of skills perceived as valuable and attained through their own efforts thus fostering competence (MacKinnon, 1999) Results are only reported for the journal entries and they are reported using the percentage of students entries that dealt with a particular element during a particular point in time During the orientation 73%of journal entries dealt with relevance 60% dealt with ownership 57% dealt with empowerment and 53% dealt with community During case one (weeks 1-5) 46%of journal entries dealt with relevance 88% dealt with ownership 51% dealt with empowerment and 81% dealt with community During case two (weeks 6-10) 44% of journal entries dealt with relevance 79% dealt with ownership 58% dealt with empowerment and 87% dealt with community A sense of community among all of the results is the only element that was reported increasing in importance throughout the treatment. Nevertheless the author suggests that the relationship among the elements and motivation is synergistic. If any element is missing it is likely that the motivational impact of the remaining elements will be somehow diminished (MacKinnon 1999)

In sum studies of children and adults have shown that students who believe that schoolwork is interesting and important are cognitively engaged in learning and their motivational beliefs predict academic performance (Covington & Roberts 1986 Paulsen & Feldman, 1989 Pintrich & DeGroot, 1990 Pokay & Bluemenfeld 1990 Pintrich & Garcia 1999)

Self-efficacy refers to the beliefs concerning one's capabilities to learn or perform behaviors at designated levels (Bandura 1977 1978 1989 1993) Bandura (1977) hypothesized that self-efficacy affects one's choice of activities, effort, and persistence Thus, students with high self-efficacy are more likely to accomplish a task despite encountering difficulties Self-efficacy beliefs are task and domain-specific thus self-efficacy beliefs about one task do not relate to self-efficacy beliefs about another task Students acquire information used to appraise self-efficacy from their previous performances forms of persuasion and physiological reactions (Bandura 1977, 1978, 1989 1993) Since the introduction of the concept in 1977 researchers have supported the notion that the judgements of capability an individual brings to a specific task are strong predictors of the performance that results from that task and mediate the influence of other determinants of that performance (Bandura, 1977 1978 1989 1992 Pajares 1995 Pajares 1996 Vrugt, Langereis & Hoogstraten 1997 Schunk 1996)

In general, researchers have established that self-efficacy beliefs are correlated with other self beliefs and with academic changes and outcomes and that self-efficacy is a strong predictor of related academic outcomes (Pajares 1995) Furthermore self-efficacy is related to the learning of strategies Self-efficacy is promoted when one understands and applies a strategy that can enhance achievement and lead to a greater sense of control over learning outcomes (Griffin & Griffin 1998 Schunk 1996) According to Bandura (1977) if students have experienced success in a domain they are likely to have higher self-efficacy in that domain

Studies that have examined self-efficacy as a motivational construct have reported significant implications for academic achievement. A study conducted by Pintrich and DeGroot (1990) examined the effects of motivational components and self-efficacy on seventh grade students' achievement Students responded to items on the Motivated Strategies for Learning Questionnaire (MSLQ) regarding their motivation cognitive strategy use metacognitive strategy use and effort Their responses were correlated with their academic achievement on classroom tasks and assignments on a variety of tasks Results of this study found that higher levels of self-efficacy and intrinsic value were correlated with higher levels of self regulation and student achievement Self-efficacy differed with respect to gender with boys having higher self-efficacy This study's findings suggest that self-efficacy and intrinsic value is positively related to cognitive engagement and performance Thus students who were efficacious and motivated to learn the material and believed that their school-work was interesting and important were more cognitively engaged in trying to learn and comprehend the material

A study by Zimmerman Bandura and Martinez-Pons (1992) examined the relationship between self-efficacy, motivation and academic achievement in high school students enrolled in social studies The participants in this study were 116 ninth and tenth graders that responded to two sub-scales of the Children s Multidimensional Self-Efficacy Scales self-efficacy for self regulated learning and self-efficacy for academic achievement The students responses on the efficacy scales were correlated with their grade prior grades in social studies their current grade in the social studies class and with their parents responses on the parental grade goals scale The results found that students prior grade in social studies correlated significantly with their perceived academic self-efficacy their grade goal their parents' grade goal and their final grade in the course Furthermore the students perceived efficacy for academic achievement correlated significantly with their grade goals and with their final grade in social studies

Griffin and Griffin (1998) studied the effects of a metacognitive strategy on achievement, self-efficacy and test anxiety in undergraduate education majors This study used reciprocal peer tutoring (RPT) a cooperative learning strategy in which students benefit form preparing to tutor another student The participants were forty seven students enrolled in one of two courses Students were administered the self-efficacy and test anxiety scale (STAS) prior to each examination during a period of a semester Scores on the examinations were used to determine the effects of RPT on achievement and those scores were then correlated with the scores on the STAS scale Results found that there was a statistically significant difference in achievement on the examinations when the treatment was administered Text anxiety was lower when students participated in RPT Although there was not significant evidence to indicate that RPT impacted academic self-efficacy on average students showed higher levels of self-efficacy when exposed to RPT

Paulsen and Feldman (1999) conducted a study on the relationships between motivational constructs and university epistemological beliefs Epistemological beliefs or students beliefs about knowledge are believed to be a factor in students academic motivation (Paulsen & Feldman 1999) The participants were 246 college students enrolled in four sections of the same course The participants were administered the Motivated Strategies for Learning Questionnaire (MSLQ) which measures each of the motivational constructs intrinsic goal orientation extrinsic goal orientation task value control of learning self efficacy and test anxiety The participants were administered the Epistemological Beliefs Questionnaire (EBQ) which measures each of the four dimensions that constitute the construct of epistemological beliefs (a) simple knowledge (b) certain knowledge (c) quick learning and (d) fixed ability Three of the four dimensions of epistemological beliefs were found to be significantly related to four or more of the motivational constructs (a) intrinsic goal orientation (b) extrinsic goal orientation (c) task value (d) control of learning (e) self-efficacy and (f) test anxiety Students with the naïve belief that the structure of knowledge is simple were less likely to have an intrinsic goal orientation to appreciate the value of learning tasks to perceive an internal control over learning or to feel efficacious about their capacity to learn This was the result when comparing them to students with the sophisticated belief that the structure of knowledge is complex. Students with the naïve belief in simple knowledge were also more likely to have an extrinsic goal orientation and to experience higher levels of test anxiety than were students with more sophisticated beliefs Students with the naïve belief that learning takes place quickly compared to students with the more sophisticated belief that learning takes place gradually were less likely to have an intrinsic goal orientation to appreciate the value of learning tasks and to perceive an internal control over learning Students with the naïve belief that learning takes place quickly were more likely than the rest of the students to have an extrinsic goal orientation towards learning Students with the belief that the ability to learn is fixed were less likely to have an intrinsic goal orientation to appreciate the value of learning tasks to perceive an internal control over learning or to feel efficacious about their capacity to learn These were the results when compared to students with the sophisticated belief that the ability to learn can be improved and therefore controlled over time. Furthermore, findings on the students' beliefs regarding whether knowledge is absolute and certain or tentative and evolving was not related to motivational constructs.

Vrugt, Langereis, and Hoogstraten (1997) conducted two experiments to examine the relationship of goal-setting and academic self-efficacy on exam performance. The participants were 438 psychology freshmen. The participants were administered the Academic Self-Efficacy questionnaire (ASE), and Guilford's structure of intellect model as a measure of IQ. The participants were also asked about their personal goals concerning three areas of study: introduction to psychology, personality theory, and social psychology. Exam performance at the end of the term was also collected. The results of the first experiment found that intelligence, self-efficacy magnitude, and goals contributed significantly to exam performance, accounting for 5% of the variance in exam performance. The authors contend that these findings suggest that goals played a mediating role among self-efficacy magnitude, self-efficacy strength, and exam performance. For the second experiment, Vrugt, Langereis, and Hoogstraten (1997) investigated whether malleability beliefs together with self-efficacy would affect performance. Measures of malleability beliefs were gathered by asking questions that measured the extent to which the participants thought they could develop their ability by acquiring knowledge, practice, and strategy. Results found that participants with relatively high self-efficacy appraisals attributed failure less to lack of talent than the participants with low self-efficacy appraisals did Participants with strong malleability beliefs were less likely to attribute failure to lack of talent than were the participants with weak malleability beliefs Participants with high self-efficacy appraisals and strong malleability beliefs performed better on exams than participants with low self-efficacy appraisals and weak malleability beliefs Participants with relatively high intelligence performed better on the exams than the participants with relatively low intelligence Participants with high intelligence and strong malleability beliefs performed better on exams than participants with strong malleability and low intelligence Thus the results of this study suggest that among the students that participated in this study those with high intelligence high self-efficacy appraisals and strong malleability beliefs performed best on the exams those with low self-efficacy and weak malleability beliefs performed the worst

In sum studies reviewed in this section support the view that self-efficacy beliefs being task-and situation-specific in a certain field, influence achievement in that field Also the research on student motivation and academic achievement has found significant relationships between motivational constructs such as self efficacy and academic success Likewise, research has supported the fact that motivational beliefs such as perceptions of high self-efficacy a focus on mastery goals and high value and interest in the task or content are positively related to greater use of cognitive and metacognitive strategies as well as actual academic performance (Garcia & Pintrich 1996 Pintrich & DeGroot 1990) Moreover self-efficacy is also related to strategy instruction in that the greater self-efficacy one possesses about a particular strategy the more likely that one will be to apply the strategy In addition research has shown that strategy instruction can influence self-efficacy because self-efficacy is promoted when a person understands and applies a strategy that can enhance achievement and lead to a greater sense of control over the learning outcomes (Schunk, 1989) Furthermore with respect to student learning and the role of context, as noted earlier results support the notion of situated cognition Tasks that are learned within the same domain as the target context facilitate and promoting learning and transfer (Hattie et al 1996) Thus the instructional context should be treated as a variable rather than a nuisance and the conditions under which the instructional context promotes learning and transfer should be studied (Garner 1990)

CHAPTER III
METHODOLOGY

This study is designed to determine whether the independent variables type of instructional method academic self-efficacy and motivation are related to scores on the reciprocal teaching test This study will examine the reciprocal teaching test scores of preservice teachers at the University of Florida A description of the participants research design and methods of data analysis is presented in this chapter

Participants

The sample consists of preservice teachers enrolled in the education program at the University of Florida All preservice teachers were education students enrolled in the required courses for the program and voluntarily chose to participate in this study In compensation all participants received two percent extra credit towards the education course in which they signed up

Hypotheses

The following questions guided the research.

1 Will there be a difference between the situated cognition method of instruction and the lecture method of instruction on students performance on the reciprocal teaching test questions that require factual knowledge?

2. Will there be a difference between the situated cognition method of instruction and the lecture method of instruction on students' performance on the reciprocal teaching test questions that require applied knowledge?
3. Will students' level of academic self-efficacy as measured by the academic self-efficacy subset (items 1-20) of the MSPSE significantly interact with students' performance on the reciprocal teaching test questions that require factual knowledge?
4. Will students' level of academic self-efficacy as measured by the academic self-efficacy subset (items 1-20) of the MSPSE significantly interact with students' performance on the reciprocal teaching test questions that require applied knowledge?
5. Will students' level of intrinsic motivation as measured by the intrinsic motivation subset (items 1-20) of the MSLQ significantly interact with students' performance on the reciprocal teaching test questions that require factual knowledge?
6. Will students' level of intrinsic motivation as measured by the intrinsic motivation subset (items 1-20) of the MSLQ significantly interact with students' performance on the reciprocal teaching test questions that require applied knowledge?

Following from these research questions the null hypotheses of this study were as follows

1. There will be no significant difference between students who are taught reciprocal teaching using the situated cognition method of instruction and

students who are taught reciprocal teaching using the lecture discussion method of instruction in their test scores for the factual section of the reciprocal teaching test

2. There will be no significant difference between students who are taught reciprocal teaching using the situated cognition method of instruction and students who are taught reciprocal teaching using the lecture discussion method of instruction in their test scores for the applied section of the reciprocal teaching test
3. There will be no significant interaction between students' scores on the reciprocal teaching test, the instructional method under which they learned reciprocal teaching, their level of academic self-efficacy as measured by the academic self-efficacy subset (items 21, 22, 35-40) of the MSPSE
4. There will be no significant interaction between students' scores on the reciprocal teaching test, the instructional method under which they learned reciprocal teaching, their level of intrinsic motivation as measured by the intrinsic motivation subset (items 1, 16, 22, and 24) of the MSLQ
5. There will be no significant interaction between students' scores on the reciprocal teaching test, the instructional method under which they learned reciprocal teaching, and their student grade point average

Hypothesis 1 and 2 were tested using ANOVA. Hypotheses 3, 4, and 5 were tested using ANCOVA with repeated measures to test for possible 3-way interactions as well as the possible confounding effects of student grade point average.

Procedures

The data was collected by means of questionnaires and a multiple-choice test. Academic self-efficacy was measured using the items pertaining to academic self-efficacy on the Multidimensional Scales of Perceived Self-Efficacy (MSPSE) (Bandura, 1989 with permission). Motivation was measured using the items pertaining to motivation on the Motivated Strategies for Learning Questionnaire (MSLQ) (Garcia & Pintrich, 1996). Students' knowledge about reciprocal teaching was measured using students' scores on a test designed for this study which tests students' knowledge of reciprocal teaching in the form of exam questions on the reciprocal teaching method as a strategy for instruction. In addition, a few background questions were presented on a questionnaire in order to assess demographic variables.

The preservice teachers participating in the study were students enrolled in Learning and Cognition, Educational Psychology, The Adolescent, Teaching Diverse Populations, and Test and Measurement, which are education courses required or recommended for education majors. For participating in this study, all participants werel be offered two percent extra credit points towards grades in their respective courses.

The participants were randomly assigned using a computer to either the situated cognition method of instruction group or the traditional method of instruction group. Each group met with the researcher as a group at the specified time in a classroom in Norman Hall for approximately one hour and a half This is an adequate amount of time to accomplish the teaching of the strategy in the preservice teaching curriculum being that in a regular semester that would involve almost two full class sessions dedicated to the learning of this strategy The researcher instructed the situated cognition instruction groups on reciprocal teaching using a lecture and then using a model based on situated cognition the students engaged in the strategy using the age-appropriate reading provided (see appendix A for the reading) On the other hand the lecture-discussion groups had the researcher instruct them on reciprocal teaching using the same lecture as the situated cognition group however they engaged in small-group discussion after reading on the background of the reciprocal teaching strategy (see appendix B for the reading) The small-group discussion consisted of the students conferring about the effectiveness of the strategy through the application questions that were provided at the end of the reading All groups were administered the treatments in multiple independent groups In all groups the researcher began by distributing a packet containing the informed consent, the demographic questionnaire the MSLQ and the MSPSE questionnaire which approximately took 10 minutes to complete Once all of the students handed-in the packet the researcher introduced the reciprocal teaching strategy using a lecture that provides background information and explanations regarding its use in the classroom As part of the lecture the researcher modeled reciprocal teaching by using the four listening comprehension activities summarizing self questioning clarifying and predicting The lecture took approximately five minutes Upon completion of the lecture the researcher will ask for questions before commencing the activity All of the students will be asked to break into small groups of four to five students and to sit in a circle

All of the situated cognition groups received a reading with instructions on how to begin the reciprocal teaching activity The researcher read the directions aloud and asked if there were any questions before allowing the students to begin Students performed the comprehension activities one by one taking turns being the teacher ensuring that every member of the group had a turn leading the discussion as well as performing each of the activities The students all had the opportunity to practice the activity several times while being observed by trained monitors to ensure that the activity was being performed The trained monitors as well as the researchers did not interfere with the ongoing activity

All of the lecture-discussion groups received a reading with instructions on how to begin the reciprocal teaching activity The researcher read the directions aloud and asked if there were any questions before allowing the students to begin The students read and answered questions on the reading provided The students then had the opportunity to discuss all of the questions while being observed by trained monitors to ensure that the activity was being performed The trained monitors as well as the researchers did not interfere with the ongoing activity All groups were administered the Reciprocal Teaching Test (RTT) following the treatment session which took approximately 15 minutes to complete

Variables that were not included in the study such as gender, race SES ability I Q were controlled through random assignment of the participants to the experimental and control groups A brief information sheet was attached to the questionnaires in order to assess demographic variables Upon completion of all of the sessions participants had the opportunity to sign their name under the appropriate instructor and class for which they received the extra credit This sheet was immediately given to the course instructors in order for the instructors to assign the extra credit Students did not identify themselves on the informed consent, the questionnaires, or the test Therefore confidentiality was assured and the participants responses were anonymous

Instruments

The Reciprocal Teaching Test

This assessment which was developed specifically for this study consists of 20 multiple-choice items and was designed to measure students' mastery and application of the reciprocal teaching strategy Questions 1-10 are factual questions that asked the students about their knowledge of the reciprocal teaching strategy Questions 11-20 consisted of short scenarios that used reciprocal teaching in the real-life context, and required students to apply their knowledge of the strategy to novel real-life situations The reciprocal teaching test yielded two separate quantitative scores One score was the student's score on the factual items and one score was the student's score on the applied items

Face validity was assessed by a group of reviewers without formal training in the subject under study that reviewed the extent to which each item covered the intended domain of reciprocal teaching. Each reviewer was given a description of the reciprocal teaching domain. All reviewers consistently reported that all of the items covered the intended domain of reciprocal teaching. Content validity was assessed by a group of individuals with expertise in some aspect of reciprocal teaching that reviewed whether the item covered the intended domain. All reviewers consistently reported that all of the items covered the intended domain of reciprocal teaching.

An internal consistency measure of reliability was calculated using both Spearman-Brown and Guttman split-half reported .5 reliability using a sample size of 21 education students. In order to increase the reliability of this test, the variance-covariance matrix was examined. Items with low variance were dropped and replaced with new items similar to those with high variance, but still covering the original item's domain. Five items were also added similar to the ones with high variance in order to increase overall test reliability. Thus, the Reciprocal Teaching consisted of 25 items: 10 items were factual and 15 items were applied. An internal consistency measure of reliability was calculated for the Reciprocal Teaching Test using the students in this study: both Spearman-Brown and Guttman split-half reported .54 reliability. Finally, the means and standard deviations of students' scores for the factual and on the applied items are provided in Table 1.

Multidimensional Scales of Perceived Self-Efficacy

The Multidimensional Scales of Perceived Self-Efficacy (MSPSE) was developed by Bandura (1988, with permission) in response to the theoretical and applied importance of the self-efficacy construct (Williams & Coombs 1996) Bandura's (1977 1982) theory of self-efficacy guided the development of the scales Bandura proposes that individuals who perceive themselves as capable tend to attempt and successfully execute tasks or activities (Bandura, 1989 1993) The Multidimensional Scales of Perceived Self-Efficacy is a 57-item self-report measure that includes nine subscales with items that are scored on a seven-point Likert scale from 1 (not well at all) to 7 (very well) Each subscale is comprised of four to eleven items rated along a seven-point Likert type scale Each subscale yields a separate continuous score Higher scores indicate more positive self-efficacy beliefs For the purpose of this study only items 1-20 which pertain to academic self-efficacy will be used Thus students will receive a score of academic self-efficacy and only that subscale will be analyzed

Williams and Coombs (1996) conducted an analysis of the reliability and validity of the Multidimensional Scales of Perceived Self-Efficacy These authors report favorable reliability and validity estimates for this instrument. The MSPSE produced an overall alpha reliability coefficient of 0 92 indicating strong internal consistency This instrument shows discriminant validity between the nine constructs of self-efficacy Divergent validity correlations between subscale pairs were relatively small r= 13 to r= 56 revealing a low rate of measurement overlap between the nine subscales Variance shared is estimated to be 2%-31%. This scale has been used in the same way that will be used in this study A study conducted by Zimmerman, Bandura and Martinez-Pons (1992) used two subscales of the MSPSE self-efficacy for regulated learning and self-efficacy for academic achievement, the latter is the one that will be used in this study The authors used these two subscales to measure students academic self-efficacy and found that self-efficacy as measured by this scale was a good predictor of students academic success Cronbach s alpha coefficient was calculated for the two subscales (self-efficacy for regulated learning and the self-efficacy for academic achievement) proving the scales to be reliable (Zimmerman Bandura, & Martinez-Pons 1992) A coefficient of 87 was obtained for the self-efficacy for regulated learning subscale and a coefficient of 70 was obtained for the self-efficacy for academic achievement subscale (Zimmerman Bandura and Martinez-Pons (1992) The subscale of the MSPSE self-efficacy for academic achievement that will be used in this study has been cited as a proper measure of academic self-efficacy as well as a good predictor of academic achievement (Pajares 1996) However the present study will be using the MSPSE with college students and thus internal consistency coefficients were calculated using a sample size of 23 education students A Cronbach's alpha coefficient of 9 was obtained for the MSPSE overall A Cronbach s alpha coefficient of 8 was obtained for items 1 20 which comprise academic self-efficacy Finally the means and standard deviations of students scores on the academic efficacy subscale of the MSPSE are provided in Table 2

Motivated Strategies for Learning Questionnaire

The MSLQ is one of the most widely used and well-known instruments available for examining the multidimensional construct of motivation to learn (Paulsen & Feldman 1999) Garcia and Pintrich developed the MSLQ in 1986 the final version was published in 1996 (Pintrich & Garcia 1996 with permission) The MSLQ is a self-report instrument designed to assess college students motivational orientation and their use of different learning strategies The MSLQ is based on a general social-cognitive view of motivation and learning strategies with the student represented as an active processor of information whose beliefs and cognitions are important mediators of instructional input and task characteristics (Garcia & Pintrich, 1996) The MSLQ has separate scales for the assessment of each of the six motivational constructs intrinsic goal orientation extrinsic goal orientation, task value control of learning self-efficacy and test anxiety There are 61 items in total that are scored on a seven-point Likert scale from 1 (not at all true of me) to 7 (very true of me) For the purposes of this study only the 31 items pertaining to motivation will be used and they will be slightly altered to reflect this study s measuring participants motivation for their education courses overall rather than the motivation for only one specific course

The coefficient alphas for the MSLQ motivational scales demonstrated good internal consistency (Garcia & Pintrich 1996) Cronbach s alpha was used to obtain the following internal consistency reliability estimates 74 for intrinsic goal orientation items 1 16 22 24 62 for extrinsic goal orientation items 7 11 13 30 90 for task value items 4 10 17 23 26 27 68 for control of learning beliefs items 2 9 18 25 63 for self-efficacy for learning and performance items 5 6 12 15 20 21 29 31 80 for test anxiety items 3 8 14 19 28 Goodness of fit indices generated by the LISREL program suggested that the general model of motivational components with six scales and the general model of cognitive components with nine scales were reasonable representations of the data (Garcia & Pintrich 1996) An omnibus fit statistic calculated the chi-square generated a ratio of 3 49 a ratio of less than 5 is considered to be indicative of a good fit. Predictive validity between the MSLQ scales and standardized course grades showed significant correlations with final grade (Garcia & Pintrich 1996) Thus students with an intrinsic goal for learning high self-efficacy in control of their learning, and more likely to do well in the course and students who reported being anxious about the test overall and less likely to do well in the course (Garcia & Pintrich 1996) Thus, this scale has served as a valid and reliable measure of motivation

In the present study a reliability score for internal consistency was obtained since the participants are college students Due to the slight changes in the wording of the items face validity was assessed by a group of reviewers without formal training in the subject under study that reviewed whether items cover the intended domain Also content validity was assessed by a group of individuals with expertise in some aspect of motivation that reviewed whether the items cover the intended domain All reviewers were provided with a description of the academic motivation domain Since the present study slightly altered the questions to reflect students motivation for education courses and used the MSLQ with college students internal consistency coefficients were calculated using a sample size of 23 education students A Cronbach s alpha coefficient of 6 was obtained for the MSLQ overall A Cronbach s alpha coefficient of 7 was obtained for items 1 16 22 and 24 which comprise intrinsic motivation A

Cronbach's alpha coefficient of .6 was obtained for items 7, 11, 13, and 30, which comprise extrinsic motivation. A Cronbach's alpha coefficient of .8 was obtained for control over learning beliefs. A Cronbach's alpha coefficient of .9 was obtained for beliefs over the value of the task. For the purpose of this study, only the items pertaining to intrinsic motivation (items 1, 16, 22, and 24) were analyzed since these items comprised the type of motivation that is most likely to have an impact on the treatment and on the dependent measure. Because intrinsic motivation is the foundation for personal choice, it is an important component in whether or not a student will become and remain cognitively engaged in academic work (Wlodkowski, 1999). Furthermore, in learning, intrinsic motivation occurs when the activity and the environment elicit motivation in the student (Wlodkowski, 1999). Finally, the means and standard deviations of students' scores on the intrinsic motivation subscale are provided in Table 1.

Analyses

The scores on the pre- and posttests were coded and analyzed using SPSS. Factorial ANOVA were used to gather and compare the group means as well as to examine the interactions that occurred between the variables. This study attempted to examine the relationships between an instructional method based on situated cognition versus one based on a lecture-discussion method of instruction, academic motivation, self-efficacy, and the learning and transfer of reciprocal teaching as an instructional strategy.

It was expected that preservice teachers in the situated group would exhibit greater degrees of transfer than the lecture-method group on the applied questions on the reciprocal teaching test (questions 11-25) which requires application of reciprocal teaching knowledge to novel simulated real-life situations Since the situated group was provided with a learning context that provided more contextual cues than the learning context of the lecture-discussion group that can be used in the retrieval context for the applied questions they were expected to exhibit greater degrees of transfer However on the section of the reciprocal teaching test that requires factual knowledge (questions 1-10) the situated cognition group and the lecture-discussion group were expected to exhibit the same amount of transfer since those questions are independent of the contextual cues present in the learning context

It was further believed that academic self-efficacy and intrinsic motivation could have similar effects on the dependent measures and that there may be not be an interaction between students with high academic self-efficacy and students that are intrinsically motivated and their performance on the reciprocal teaching test because these students may exhibit greater degrees of transfer regardless of whether they were part of the situated or traditional method group A possible explanation may be that having high academic efficacy and/or being intrinsically motivated allows these students to persist and learn regardless of how information is presented Another possibility is that the students that have high academic efficacy and/or are intrinsically motivated are able to recognize the importance of learning the reciprocal teaching strategy for their future career

However it was believed that there might be a self-efficacy by treatment group interaction It may be possible that low self-efficacy students would exhibit greater degrees of transfer when placed in the situated group versus the lecture-method group because they would be able to test their ability with the strategy as well as receive feedback on their performance of the strategy Nevertheless the students with high academic efficacy may exhibit greater degrees of transfer when placed in the lecture-discussion group versus the situated group because due to their high academic efficacy they may not need to actually test their ability with the strategy or receive feedback on their performance of the strategy

This study provides for interesting comparisons and possible valuable interactions among a situated cognition method of instruction versus a lecture-discussion method of instruction academic self-efficacy student intrinsic motivation and the learning and transfer of reciprocal teaching as an instructional strategy

CHAPTER IV
RESULTS

The purpose of this study was to compare the effectiveness of an instructional method based on situated cognition versus the lecture-discussion method of instruction on education students' learning of reciprocal teaching The variables of academic self-efficacy and intrinsic motivation were included in the analyses for the purpose of determining if they served as predictors of students scores on the reciprocal teaching test regardless of instructional method In addition student grade point average was also included in order to determine if student grade point average predicts performance on the reciprocal teaching test regardless of instructional method

Demographic Information

The entire sample for this study consisted of 153 education students enrolled in courses offered by the College of Education at the University of Florida. Of these students 117 were female and 37 were male With regards to ethnicity 75% were White/ Caucasian 6% were African American 12% were Hispanic 3% were Asian American and 2% categorized themselves as Other The majority (74%) of the students participating in this study were between the ages of 20 and 23 The majority of the students (90%) participating in this study were education majors the rest of the sample (10%) were education minors

With regards to class standing, the sample consisted of 6% sophomores, 40% juniors, 47% seniors, 12% graduate.

The entire sample of participants was randomly assigned to either the situated cognition method of instruction or the lecture-discussion method of instruction. The situated cognition method of instruction consisted of 77 students, and the lecture-discussion method of instruction consisted of 76 students. The situated cognition group had 62 females and 15 males. Their ethnicity was: 75% White/ Caucasian, 7% African American, 11% were Hispanic, 2% were Asian American, and 2% categorized themselves as Other. The majority (66%) of the students in the situated cognition group were between the ages of 20 and 23. The majority of the students (92%) participating in this study were education majors, and the rest of the students (8%) were education minors. Their class standing was as follows: 3% sophomores, 46% juniors, 46% seniors, 5% graduate.

The lecture-discussion method consisted of 76 students, 55 females and 21 males. Their ethnic background consisted of 75% were White/ Caucasian, 5% were African American, 10% were Hispanic, 6% were Asian American, and 3% categorized themselves as Other. The majority (83%) of the students in the lecture-discussion group were between the ages of 20 and 23. The majority of the students (88%) participating in this study were education majors, the rest of the sample (12%) were education minors. There were 6% sophomores, 35% juniors, 50% seniors, and 10% graduate.

Statistical Analyses

Descriptive statistics for academic self-efficacy Intrinsic motivation, grade point average (G P.A) and both sections of the Reciprocal Teaching Test (RTT) factual and applied are reported for both instructional groups situated cognition and lecture-discussion in Table 1 Means for academic self-efficacy Intrinsic motivation and G P.A are similar for the two instructional groups because participants were randomly assigned to the groups Academic self-efficacy and intrinsic motivation were measured prior to the implementation of the treatments Grade point average (G P A) refers to the students overall grade point average prior to the semester that the study took place. The descriptive statistics for the two instructional groups suggest that the situated cognition group scored higher on the applied section but lower on the factual section than the lecture-discussion group Analyses using an independent samples t test were conducted to compare the means of the two instructional groups on the factual section of the Reciprocal Teaching Test Results of the t test were significant, t(152)=3 04 p= 002 with the Lecture-Discussion group having the higher score. The effect size was 49 Analyses using an independent samples t test were also conducted to compare the means of the two instructional groups on the applied section of the Reciprocal Teaching Test The results of the t test were also significant t(152) = -11 05 p= 000 with the Situated Cognition group having the higher mean The effect size was 1 77

Analyses of covariance (ANCOVA) were performed to determine whether or not the effects of instructional method interact with either academic self-efficacy or intrinsic motivation (see Table 4 5 6 and 7) Prior to testing for effects with these variables the possibility of a G P A by method interaction was tested for each of the two sections of the Reciprocal Teaching Test: factual and applied (see Table 8 9 10 and 11) The purpose for this analysis is that G P A can be correlated with both academic self-efficacy and intrinsic motivation The analysis failed to show a significant interaction between instructional method and G P.A on either the factual section of the Reciprocal Teaching Test (F = 676 p = 412) or the applied section of the Reciprocal Teaching Test (F = 148 p = 700) with academic self-efficacy as a covariate Likewise no interactions were found between instructional method and G P A on the factual section of the Reciprocal Teaching Test (F = 006 p = 939) or the applied section of the Reciprocal Teaching Test (F= 2 858 p = 093) with intrinsic motivation as the covariate Given that G P.A did not significantly interact with instructional method or with either intrinsic motivation or academic self-efficacy nor did G P.A produce a main effect, it was removed from the model

Analysis of covariance (ANCOVA) intended to establish whether or not instructional method interacted with either academic self-efficacy or intrinsic motivation found that there were no significant interactions between instructional method and self-efficacy on the factual section of the Reciprocal Teaching Test (F = 046 p = 830) or on the applied section of the Reciprocal Teaching Test (F= 097 p = 756) Similarly interactions between instructional method and intrinsic motivation on the factual section of the Reciprocal Teaching Test (F = 008 p = 927) were not significant and neither were interactions between instructional method and intrinsic motivation on the applied section of the Reciprocal Teaching Test (F = 2 944, p = 088)

The preceding analysis indicated that neither academic efficacy nor intrinsic motivation interacted with the instructional method factor The next questions investigated were whether either academic efficacy or intrinsic motivation predicted performance on the factual or on the applied section of the Reciprocal Teaching Test (see Table 12, 13 14 and 15) These analyses of covariance demonstrated that academic efficacy was a significant predictor (R^2 inc = 003) of the Reciprocal Teaching Test scores on the factual section (F = 6 43 p = 012) and on the applied section (R^2 inc = 004) of the Reciprocal Teaching Test (F = 9 82 p = 002) On the contrary intrinsic motivation did not prove to be a significant predictor of the scores on the factual section (R^2 inc = 001) of the Reciprocal Teaching Test (F = 2 09 p = 15) and although it was marginal intrinsic motivation also failed to prove a significant predictor for the applied section (R^2 inc = 002) of the Reciprocal Teaching Test (F = 3 90 p = 05)

Further analyses of covariance were conducted to determine whether or not there was an interaction between academic efficacy and intrinsic motivation and both academic efficacy and intrinsic motivation and instructional method for both sections of the Reciprocal Teaching Test (see Table 16 and 17) These analyses showed no interaction between academic efficacy and intrinsic motivation on the factual portion of the Reciprocal Teaching Test (F = 997 p = 320) or on the applied portion of the Reciprocal Teaching Test (F = 001 p =

.969). There was also no interaction found between academic efficacy, intrinsic motivation, and instructional method for the factual section of the Reciprocal Teaching Test (F = .598, p = .440) or between academic efficacy, intrinsic motivation, and instructional method for the applied section of the Reciprocal Teaching Test (F = 1.140, p = .287).

The final set of analyses were performed to determine if using analyses of covariance with repeated measures would yield different results for the RTT instructional method, G.P.A, intrinsic motivation, and academic self-efficacy. Results of these analyses failed to yield a statistically significant interaction among the RTT, instructional method, and intrinsic motivation as well as between the RTT, instructional method, and academic motivation. Due to the possibility of confounding of academic efficacy or intrinsic motivation with student grade point average, this interaction was also tested and a significant interaction was not found (see Table 18 and 19).

Table 1

Means and Standard Deviations of students responses on the two sections of the Reciprocal Teaching Test (RTT) Academic Self Efficacy as measured by the MSPSE intrinsic motivation as measured by the MSLQ and grade point average (G P A)

	Measure				
	Efficacy	Motivation	G P A	RTT	
Instructional Group				Fact	App
Lect-Disc					
M	5 38	5 07	3 25	9 71	6 44
SD	88	92	61	2 81	2 17
Sit Cog					
M	5 40	5 02	3 45	8 40	10 78
SD	56	94	55	2 69	2 67

Note On the efficacy scale the lowest possible total score is 20 points and the highest possible total score is 140 points The efficacy scale is comprised of 20 questions On the motivation scale the lowest possible total score is 4 points and the highest possible total score is 28 points The motivation scale is comprised of 4 questions Both sections of the RTT factual and applied are on a 15-point scale

Table 2

Analysis of variance for Group (instructional method) and Reciprocal Teaching Test scores factual section

Source	Sum of Squares	df	Mean Square	F	p value
		Between-Subjects			
Intercept	12822.190	1	12822.190	1755.58	000*
Group	67.69	1	67.69	9.629	002*
Error	1068.491	152	7 030		
Total	13736.500	154			

*p < 05

Table 3

Analysis of variance for Group (instructional method) and Reciprocal Teaching Test scores applied section

Source	Sum of Squares	df	Mean Square	F	p value
		Between-Subjects			
Intercept	11418.184	1	11418 184	1920 342	000*
Group	725.470	1	725 470	122 012	000*
Error	903.778	152	5 946		
Total	13124 250	154			

*p < 05

Table 4

Analysis of covariance for Instructional Method (Group) Academic Self Efficacy and Reciprocal Teaching Test score factual section

Source	Sum of Squares	df	Mean Square	F	p value
			Between-Subjects		
Intercept	55 921	1	55 921	8 115	005*
Group	2 583	1	2 583	375	541
GPA	3 607	1	3 607	005	942
Efficacy	39 635	1	39 635	5 752	018*
Grp * Eff	319	1	319	046	830
Error	1019 849	148	6 891		
Total	13628 250	153			

*p < 05

Table 5

Analysis of covariance for Instructional Method (Group) Academic Self-Efficacy and Reciprocal Teaching Test score applied section

Source	Sum of Squares	df	Mean Square	F	p value
			Between-Subjects		
Intercept	46 338	1	46 338	8 198	005*
Group	16 215	1	16 215	2 869	092
Efficacy	42.104	1	42 104	7 450	007*
GPA	1 552	1	1 552	275	601
Grp * Efficacy	549	1	549	097	756
Error	836 426	148	5 652		
Total	12928 250	153			

*p < 05

Table 6

Analysis of covariance for Instructional Method (Group), Intrinsic Motivation and Reciprocal Teaching Test score: factual section

Source	Sum of Squares	df	Mean Square	F	p value
			Between-Subjects		
Intercept	260 189	1	260.188	36.644	000*
Group	1 512	1	1 512	.213	645
GPA	.279	1	279	039	843
Int Mot	14.873	1	14 873	2 095	150
Group * Int.Mot	5.861	1	5 061	.008	.927
Error	1050 856	148	7,100		
Total	13826 250	153			

*p < 05

Table 7

Analysis of covariance for Instructional Method (Group), Intrinsic Motivation and Reciprocal Teaching Test score: applied section

Source	Sum of Squares	df	Mean Square	F	p value
			Between-Subjects		
Intercept	203 150	1	203 150	35 313	000*
Group	79 070	1	79.070	13.744	000*
GPA	1.564	1	1.564	.272	.603
Int. Mot	24 552	1	24 552	4 268	041*
Grp * Int. Mot	15.934	1	16.934	2.844	058
Error	851.421	148	5 753		
Total	12928 250	153			

*p < 05

Table 8

Analysis of covariance for Instructional Method (Group) Academic Self Efficacy and Reciprocal Teaching Test score factual section

Source	Sum of Squares	df	Mean Square	F	p value
		Between-Subjects			
Intercept	80 381	1	80 381	8 743	004*
Group	5 383	1	5 383	780	378
GPA	4 386	1	4 386	835	427
Efficacy	41 718	1	41 718	6 041	015*
Group * GPA	4 870	1	4 670	678	412
Group * Eff	185	1	185	027	870
Error	1015 179	147	6 906		
Total	13626 250	153			

*p < 05

Table 9

Analysis of covariance for Instructional Method (Group) Academic Self-Efficacy and Reciprocal Teaching Test score. applied section

Source	Sum of Squares	df	Mean Square	F	p value
		Between-Subjects			
Intercept	54 451	1	54.451	9 656	002*
Group	6 716	1	6 716	1 192	277
Efficacy	45 076	1	45.076	8 001	.005*
GPA	9.883	1	9.883	1 745	.189
Group * GPA	8.312	1	8.312	1 475	.226
Group * Eff	842	1	842	.149	700
Error	828.115	147	5 633		
Total	12928.250	153			

*p < 05

Table 10

Analysis of covariance for Instructional Method (Group) Intrinsic Motivation and Reciprocal Teaching Test score factual section

Source	Sum of Squares	df	Mean Square	F	p value
			Between-Subjects		
Intercept	195 716	1	195 716	27 415	000*
Group	2 870	1	2 870	402	527
GPA	1 686	1	1 686	236	628
Int Mot	14 352	1	14 352	2 010	158
Grp * Int Mot	4 192	1	4 192	006	939
Grp * GPA	1 414	1	1 414	198	657
Error	1049 442	147	7 139		
Total	13826 250	153			

*p < 05

Table 11

Analysis of covariance for Instructional Method (Group) Intrinsic Motivation and Reciprocal Teaching Test score applied section

Source	Sum of Squares	df	Mean Square	F	p value
			Between-Subjects		
Intercept	160 049	1	160 049	27 712	000*
Group	39 194	1	39 194	6 786	010*
GPA	3 612	1	3 612	625	430
Int Mot	23 674	1	23 674	4 099	045*
Group * GPA	2 445	1	2 445	423	516
Group * Int Mot	16 493	1	16 493	2 856	093
Error	848 976	147	5 775		
Total	12928 250	153			

*p < 05

Table 12

Analysis of covariance for Instructional Method (Group) Academic Efficacy and Reciprocal Teaching Test score factual section

Source	Sum of Squares	df	Mean Square	F	p value
		Between-Subjects			
Intercept	73 001	1	73 001	10 733	001
Group	72 037	1	72 037	10 591	001*
Efficacy	43 762	1	43 762	6 434	012*
Error	1020 224	150	6 801		
Total	13626 250	153			

*p < 05

Table 13

Analysis of covariance for Instructional Method (Group) Academic Efficacy and Reciprocal Teaching Test score applied section

Source	Sum of Squares	df	Mean Square	F	p value
		Between-Subjects			
Intercept	49 08	1	49 08	8 781	004
Group	699 788	1	699 788	125 202	000*
Efficacy	54 901	1	54 901	9 823	002*
Error	838 388	150	5 589		
Total	12928 250	153			

*p < 05

Table 14
Analysis of covariance for Instructional Method (Group) Intrinsic Motivation and Reciprocal Teaching Test score factual section

Source	Sum of Squares	df	Mean Square	F	p value
		Between-Subjects			
Intercept	268 345	1	269 345	38 433	000
Group	67 648	1	67 648	9 653	002*
Efficacy	14 657	1	14 657	2 091	150
Error	1051 212	150	7 008		
Total	13626 250	153			

*p < 05

Table 15

Analysis of covariance for Instructional Method (Group) Intrinsic Motivation and Reciprocal Teaching Test score applied section

Source	Sum of Squares	df	Mean Square	F	p value
		Between-Subjects			
Intercept	209.836	1	208.836	36.152	.000
Group	713 326	1	713.326	122.897	.000*
Int Mot	22.646	1	22.646	3.902	.050
Error	870 643	150	5 804		
Total	12928.250	153			

*p < 05

Table 16

Analysis of covariance for Instructional Method (Group), Academic Self-Efficacy Intrinsic Motivation and the factual section of the Reciprocal Teaching Test scores

Source	Sum of Squares	df	Mean Square	F	p value
		Between Subjects			
Intercept	125	1	125	018	894
Group	8 013	1	8 013	1 143	.287
Efficacy	9 099	1	9 099	1 298	256
Int Mot	4 703	1	4 703	671	414
Group * Eff	6 328	1	6 328	903	344
Group * Int Mot	6 987	1	6 987	997	320
Eff * Int Mot	4 194	1	4 194	598	440
Grp* Eff * Int Mot	6 681	1	6 681	953	330
Error	1009 08	144	7 008		
Total	13526 250	152			

*p < 05

Table 17

Analys s of covariance for Instructional Method (Group) Academic Self-Efficacy Intrinsic Motivation and the applied section of the Reciprocal Teaching Test scores

Source	Sum of Squares	df	Mean Square	F	p value
		Between-Subjects			
Intercept	1 577	1	1 577	261	597
Group	349	1	349	602	803
Efficacy	13 231	1	13 321	2 359	127
Int Mot	7 741	1	7 741	1 380	242
Group * Eff	319	1	319	057	812
Group * Int Mot	8 306	1	8 306	001	969
Efficacy * Int Mot	8 395	1	8 395	1 140	287
Group* Eff * Int Mot	372	1	6 681	066	797
Error	807 615	144	5 606		
Total	12732 250	152			

*$p < 05$

Table 18

Analysis of covariance with repeated measures for Instructional Method (Group), Academic Self-Efficacy GPA, and Reciprocal Teaching Test (RTT) score

Source	Sum of Squares	df	Mean Square	F	p value
		Within-Subjects			
RTT	7 681	1	7 681	023	880
RTT * Group	12.063	1	12 063	3 615	059
RTT * GPA	542	1	542	163	687
RTT * Eff	3 248	1	3 248	010	922
RTT * Grp * GPA	261	1	261	078	780
RTT * Grp * Eff	908	1	908	272	603
Error	490 507	147	3 337		

*p < 05

Table 19

Analysis of covariance with repeated measures for Instructional Method (Group), Intrinsic Motivation GPA and Reciprocal Teaching Test (RTT) score

Source	Sum of Squares	df	Mean Square	F	p value
		Within-Subjects			
RTT	1.762	1	1.762	540	464
RTT * Group	51 225	1	51 225	15 686	000*
RTT * GPA	.261	1	.261	080	778
RTT * Int Mot	.603	1	.603	.185	.668
RTT * Grp * GPA	7.017	1	7 017	021	.884
RTT * Grp * Int Mot	7 492	1	7 492	2.294	.132
Error	483 236	147	3 287		

*p < 05

In summary results of this study found that the instructional method proved to have a significant effect on students scores on both the applied and the factual sections of the Reciprocal Teaching Test The mean of the situated cognition instruction group was higher than the mean of the lecture-discussion group for the applied section of the Reciprocal Teaching Test However the mean of the lecture-discussion group was higher than the mean of the situated cognition group for the factual section of the Reciprocal Teaching Test. Academic self-efficacy was found to be a significant predictor of both sections of the Reciprocal Teaching Test. Nevertheless Intrinsic motivation was not found to be a significant predictor for either section of the Reciprocal Teaching Test, even though for the applied section the level was marginally non-significant Three-way interactions between the Reciprocal Teaching Test, instructional method and academic efficacy and between Reciprocal Teaching Test, instructional method and intrinsic motivation were tested and neither was significant Student grade point average was tested with both sections of the RTT instructional method academic self-efficacy and intrinsic motivation There were no significant interactions and G.P.A. did not show a main effect.

CHAPTER V
SUMMARY AND CONCLUSIONS

Summary

Purpose of Study

The purpose of this study was to compare the effectiveness of an instructional method based on situated cognition versus the lecture-discussion method of instruction on education students' learning of reciprocal teaching. Academic self-efficacy and intrinsic motivation were included in the study for the purpose of determining if they served as predictors of all of the students' scores on both sections of the reciprocal teaching test, factual and applied, regardless of the method under which they received the reciprocal teaching instruction or if they interacted with the instructional method. Furthermore, due to the possibility of confounding of academic efficacy or intrinsic motivation with student grade point average, a 3-way interaction between Reciprocal Teaching Test, instructional method, and student grade point average was initially performed.

The following questions guided the research:

1. Will there be a difference between the situated cognition method of instruction and the lecture method of instruction on students' performance on the factual section of the reciprocal teaching test?

2. Will there be a difference between the situated cognition method of instruction and the lecture method of instruction on students' performance on the application section of the reciprocal teaching test?
3. Will students' level of academic self-efficacy as measured by the academic self-efficacy subset (items 1-20) on the MSPSE significantly interact with students' performance on the reciprocal teaching test questions that require factual knowledge?
4. Will students' level of academic self-efficacy as measured by the academic self-efficacy subset (items 1-20) of the MSPSE significantly interact with students' performance on the reciprocal teaching test questions that require applied knowledge?
5. Will students' level of intrinsic motivation as measured by the intrinsic motivation subset (items 1, 16, 22, and 24) of the MSLQ significantly interact with students' performance on the reciprocal teaching test questions that require factual knowledge?
6. Will students' level of intrinsic motivation as measured by the intrinsic motivation subset (items 1, 16, 22, and 24) of the MSLQ significantly interact with students' performance on the reciprocal teaching test questions that require applied knowledge?

Hypothesis 1 and 2 were tested using ANOVA. Hypotheses 3, 4, and 5 were tested using ANCOVA with repeated measures to test for possible 3-way interactions as well as the possible confounding effects of student grade point average.

Methodology

The entire sample consisted of 153 education students enrolled in courses offered by the College of Education at the University of Florida. The participants were randomly assigned to either the situated cognition method of instruction or the lecture-discussion method of instruction with the purpose of being taught reciprocal teaching. Students in both the situated cognition and the lecture-discussion groups completed a demographics questionnaire, the MSPSE and the MSLQ prior to the onset of the reciprocal teaching instruction. Students were instructed on reciprocal teaching using one of the two instructional methods and then upon completion of the instruction completed the Reciprocal Teaching Test. Students were offered an extra credit incentive for their participation in this study. Confidentiality was assured because participants' responses were anonymous and only a 4-digit number that each student provided could match students' responses on the various questionnaires. Upon completion of the session, each student provided their name and social security number on a sign-in sheet that was immediately distributed to the course instructors for the administration of the extra credit.

Results

Instructional method proved to have a significant effect on students' scores on both the applied and the factual sections of the Reciprocal Teaching Test. The mean of the situated cognition instruction group was significantly higher than the mean of the lecture-discussion group for the applied section of the Reciprocal Teaching Test. However the mean of the lecture-discussion group was significantly higher than the mean of the situated cognition group for the factual section of the Reciprocal Teaching Test. Academic self-efficacy was found to be a significant predictor of both sections of the Reciprocal Teaching Test. Nevertheless intrinsic motivation was not found to be a significant predictor for either section of the Reciprocal Teaching Test, even though for the applied section the level was marginally significant The possibility of 3-way interactions between the Reciprocal Teaching Test instructional method and academic efficacy and between Reciprocal Teaching Test instructional method and intrinsic motivation were tested and neither was statistically significant. Due to the possibility of confounding of academic efficacy or intrinsic motivation with student grade point average there was an initial test for Reciprocal Teaching Test, instructional method and student grade point average interaction This interaction was also not significant

Conclusions

Conclusions drawn from this study as well as the generalizability of the results have limitations that must be considered The results of this study are based on a sample of education majors and minors in the College of Education at the University of Florida In addition all of the students that participated in this study were enrolled in classes offered by the Department of Educational Psychology at the College of Education Another limitation of the study concerns the implementation of situated cognition perspective As mentioned earlier the instructional method used in this study is based on the tenets of situated cognition because it employed the learning of an instructional strategy in a setting similar but not identical to the setting in which the instructional strategy will be used. Thus, the situated cognition method of instruction attempted to simulate more closely than the lecture discussion method of instruction, the conditions under which the strategy is used in real life. However, the way in which the situated cognition method was structured does allow for an instructional method based on the tenets of situated cognition to be incorporated and used in the typical college classroom. Likewise, the participants in this study were not assessed in the exact setting in which the strategy will be used in, rather they were tested using a simulation of the classroom setting through the use of real-life scenarios. Therefore, generalization of results to the real classroom situation will be limited to discussing the likelihood that the preservice teachers who were able to successfully transfer the information to the RTT, will also be successful in transferring reciprocal teaching to the real-life situation. Finally, this study was not done over an extended period of time. Thus, conclusions regarding long-term transfer can only be speculative.

Situated Cognition

The instructional method under which the students learned reciprocal teaching had different effects on their performance on both sections of the Reciprocal Teaching Test (RTT). Specifically, students that learned reciprocal teaching under the method based on situated cognition outperformed the students who learned reciprocal teaching under the lecture-discussion method of instruction on the applied section of the RTT This finding suggests learning a teaching strategy in this case reciprocal teaching in a setting which simulated the real-life setting in which reciprocal teaching is used was beneficial when having to apply that information to novel scenarios of real-life reciprocal teaching situations The finding that the situated cognition group s mean was significantly higher then the lecture-discussion mean on the applied questions was expected based on the prior research discussed throughout this study in situated cognition

In general situated cognition research argues that the likelihood that an individual will transfer information learned in the classroom to the real-life setting increases if the individual learns the information in the setting in which it will be used Furthermore supporters of situated cognition assert that an individual s learning and retrieval is aided by context and learning can thus be promoted by providing meaningful contextual cues and relating instruction to real-life experience (Carr Johanassen Litzinger & Marra, 1994)

Specifically research by Griffin (1995) which found that students who learned to read maps by a situated cognition method of instruction did better than students who leaned to read maps by conventional instruction on a performance assessment of map skills that paralleled the instruction that the situated cognition group received The students in the situated cognition method of instruction learned map skills by physically finding routes using maps Students in the situated cognition group also performed as well as the students in the conventional instruction group on a written assessment of map skills However, there were no significant differences found between the performances of the two groups on the performance assessment in a different environment than where the situated cognition instruction took place In addition, the study by De Loache and Brown (1983) which investigated young children s use of contextual cues present in the environment to aid their memory for the location of a hidden object in their home The results of this study indicated that children s performance on locating the hidden object was exceptional when the memory task was embedded in the natural environment, thus the distinctive information available in the home setting became associated with the hiding place

Furthermore studies by Nunes Schliemann and Carraher (1993) found that children s ability to apply previously learned knowledge to a novel setting was better when they were asked to perform tests in the natural setting of the street than on the formal tests in the classroom Children also performed better on the items that provided the context via simulations or word-problems than on the items without descriptions of context. Moreover Saljo and Wyndhamn (1990) in their study of an activity that takes place in different contextual settings found that the setting in which an activity took place was directly related to how students would engage in it Thus a social studies activity that took place during a mathematics lesson proved to be interfering with the students abilities to solve the problem because students attempted to use problem-solving modes that required the use of mathematics when it was not needed to achieve the correct answer Hence the researchers conclude that the setting was not external to the problem but poses a sense of giving background that is integral to solving it.

Also consistent with these findings is the previous research conducted on anchored instruction which simulates real life scenarios of complex-problems using videodisk technology This body of research has generally found that students that learned using the anchored instruction technique outperformed those that learned in a typical classroom setting

Findings generated by this study with regards to the differences in students scores on the two sections of the RTT as a function of which instructional method they learned reciprocal teaching under are inconsistent with other research discussed throughout this study suggesting that learning is not embedded in context and that contextual cues are not an aid to learning and transfer Specifically, the finding that students in the situated cognition outperformed the students who learned reciprocal teaching under the lecture-discussion method of instruction on the applied section of the RTT which suggests learning a teaching strategy in this case reciprocal teaching in a setting which simulated the real-life setting in which reciprocal teaching is used was beneficial when having to apply that information to novel scenarios of real life reciprocal teaching situations Furthermore the differences in the scores of the students in the situated cognition group versus the lecture discussion group on the applied section of the RTT supports the belief that context plays an important role in transfer and thus information learned in contexts similar to the target context would be more likely to transfer to a novel situation than information learned in a context different than the target context Consequently the differences in the scores of the students in the situated cognition group versus the lecture discussion group on the applied section of the RTT is a new finding that is consistent with and lends support to the situated cognition literature

The other finding related to the effects that instructional method had on students performance on the Reciprocal Teaching Test (RTT) was on the factual section of the RTT Students who learned reciprocal teaching under the lecture-discussion method of instruction had a significantly higher mean on the factual section of the RTT than the students who learned reciprocal teaching under of the method based on situated cognition This would indicate that reciprocal teaching knowledge for the factual items could be acquired employing either of these instructional methods with the lecture-discussion method being a better choice Thus for education courses the implication for this finding is directly related to what the instructor wants the students to learn and how they will be assessed If the instructor is measuring knowledge of a subject area or testing the acquisition of a knowledge base using factual questions then the lecture-discussion method of instruction would be as good of method to use or even better at achieving such goal than the situated cognition approach This finding is not consistent with research that suggests that learning and transfer of information with little or no contextual cues to a novel situation is just as likely regardless of how it is learned However, if the intention were to have students acquire information that later will require application then the situated cognition method of instruction would be more likely to achieve that goal

The difference between students scores on the factual and applied sections of the RTT as a function of instructional method is an important contribution of this study as well as a new finding The results showed that the situated cognition group performed better on the applied section of the RTT than the lecture-discussion group thus indicating that the situated method of instruction proved successful in providing contextual cues that were present in the learning situation and that could later be used in the retrieval situation Thus, the context of the instruction of reciprocal teaching for the students in the situated cognition group functioned to aid their ability to accurately transfer the acquired knowledge of reciprocal teaching to different and novel real-life scenance of reciprocal teaching Prior research had not been successful at finding specific differences between students' learning and transfer as a result of different instructional methods Generating new findings in the area of situated cognition as an instructional method as well as the implications for learning and transfer was the goal of this research Having met this goal future research can focus on expanding the results of this study from measuring transfer of the reciprocal teaching strategy using simulated real-life scenence to transfer of the strategy in the real-life setting

Academic Efficacy

Academic efficacy proved to be a significant predictor of students scores on both sections of the Reciprocal Teaching Test (RTT) These results would indicate that students in this study that reported having high academic self-efficacy beliefs also had high scores on both sections of the RTT and that students who reported having low academic self-efficacy beliefs also had lower scores on both sections of the RTT. Academic self-efficacy scores seem to have had more of an impact on the applied scores of the RTT, which may be due to the effects of self-efficacy on academic performance. Perhaps the applied section of the RTT proved to be more difficult and students had to exert more effort to correctly answer the items. Thus, their academic self-efficacy may have been a more important part of their performance and thus differences in academic self-efficacy became more salient when referring to the applied section of the RTT versus the factual section of the RTT. The implication for education courses would be that in teaching information containing contextual cues that students will later be asked to apply to a novel setting, the level of academic efficacy is more likely to impact on performance. However, in teaching information that is factual, students' level of academic efficacy may not be as important for their academic performance. Thus, academic self-efficacy might predict students' academic performance differently for different kinds of items or different types of criteria and depending on what will be used in the course to assess performance academic self-efficacy might be of greater or of lesser importance.

Overall, these are new findings in the area of academic efficacy and situated cognition. Prior research has not discussed the effects of academic efficacy on the teaching of an instructional strategy using two different educational approaches. This study's findings with regards to the differences between the role that academic efficacy played in the scores of students on the two sections of the RTT has not previously been found The overall findings of this study are consistent with the previous literature discussed throughout the study on the effect of self-efficacy on behavior, in particular the research on academic self-efficacy and student achievement However this study's findings are a new contribution to the area of academic self-efficacy and its effects on instruction and transfer of knowledge

In general self-efficacy which refers to the beliefs concerning one's capabilities to learn or perform behaviors at designated levels predicts one's choice of activities effort, and persistence (Bandura 1977, 1978, 1989 1993) Thus the implication of self-efficacy is that students with high self-efficacy are more likely to persist and accomplish a task despite encountering difficulties Research on self-efficacy has supported the notion that the judgments of capability an individual brings to a specific task are strong predictors of the performance that results from that task (Bandura 1977, 1978 1989 1993 Pajares 1995 Pajares 1996 Vrugt Langereis & Hoogstraten 1997 Schunk 1996) Therefore linking self efficacy beliefs with academic changes and outcomes as well as with being a strong predictor of such academic outcomes (Pajares 1995)

The research by Vrugt Langerels, and Hoogstraten (1997) on the effects of goal setting and academic self-efficacy on exam performance on college freshmen found that self-efficacy contributed significantly to exam performance Likewise Zimmerman Bandura and Martinez-Pons (1992) also studied self-efficacy in relation to academic achievement in high school students The results showed that students self-efficacy scores on the MSPSE were correlated with their prior grades in social studies their current grade in the social studies class and with their parents responses on the parental grade goals scale Furthermore the students perceived efficacy for academic achievement correlated significantly with their grade goals and with their final grade in social studies In addition research by Pintrich and DeGroot (1990) also found similar results in their study of self-efficacy in relation to student achievement in seventh graders Self-efficacy scores correlated with students' academic achievement on classroom tasks as well as a variety of other assignments Subsequently this study also found that higher levels of self-efficacy were correlated with higher levels of self-regulation and student achievement

In sum the findings of this study with regards to academic self-efficacy and students' scholastic performance were novel and were supported by the previous research discussed throughout this study The results suggested that an interaction between academic self-efficacy and type of instructional method was not found therefore indicating that the effects of the instructional method did not change as a function of efficacy However academic self-efficacy in this study did play a role in successfully predicting students scores on the RTT, independent of student grade point average and regardless of instructional method

Intrinsic Motivation

Intrinsic motivation was not found to be a significant predictor of performance on either section of the Reciprocal Teaching Test (RTT) However on the applied section intrinsic motivation was marginally significant. The results of this study regarding intrinsic motivation were not consistent with previously reviewed research showing students level of intrinsic motivation being related to their academic achievement

Previously discussed research had consistently found intrinsic motivation to be significant predictor of student academic success (Donald 1999 Pintrich & Garcia 1994, Pintrich & DeGroot 1990 Pokay & Blumenfeld 1990) Further, studies have corroborated the belief that students who posses intrinsic motivation (a) value and have interest in a task (b) have high self-efficacy for learning beliefs and (c) are more likely to use metacognitive learning strategies (Pintrich & DeGroot 1990 Pintrich & Garcia 1994) Research with college students discussed throughout this study consistently demonstrated that their motivational beliefs predict their academic performance (Covington & Roberts 1998 Paulsen & Feldman 1999 Pintrich & Garcia 1999)

Nevertheless a possible explanation for the finding of this study may lie in the particular treatment employed or in the lack of variability in the scores on the MSLQ Studies that have found intrinsic motivation to be a predictor of academic success have employed treatments that were administered during the course of weeks, months or even years (Donald 1999 Pintrich & DeGroot 1990 Pintrich & Garcia 1994 Pokay & Blumenfeld 1990) Motivation specifically intrinsic motivation for learning is considered to be the desire to learn for the sake of understanding Considering that in this study the treatments were implemented in one class period It is possible that the length of the treatment may not have been sufficient for intrinsic motivation to have an impact on their performance on the *RTT*. It is possible that students may need time in order to want to develop motivation for the task that this study's treatment did not provide.

This is especially the case for the applied section of the RTT in which the level of significance was marginal. Furthermore, the means of the scores for intrinsic motivation showed that students responded 1 or 2 to all items pertaining to intrinsic motivation on the MSLQ out of a maximum total score of 28 and a minimum total score of 4. Although the questions on the MSLQ for intrinsic motivation had good reliability, the intrinsic motivation scores of the students in this sample indicated uniformly low intrinsic motivation for education courses as well as low variance.

Hence, in light of the fact that students in this study did not possess high intrinsic motivation for their education courses and that there was little variability in motivation scores, it should not be surprising that intrinsic motivation was not found to be a significant predictor of students' RTT scores. As further corroboration, a study by Donald (1999) on college students' motivation and its relationship to higher-order learning found that intrinsic motivation was correlated with higher-order learning; however, the relationship was not as strong as it was originally believed. Further, it was found that context and student preparation for the course had a stronger effect on student achievement than motivation. Clearly, this is an area that further research could help to illuminate.

Concluding Remarks

Given that all but one of the expected findings were confirmed the use of an instructional strategy based on situated cognition proved to be an effective method in learning and applying reciprocal teaching to simulated novel classroom situations In addition students academic efficacy scores predicted their scholarly success This study s findings added to the research on the effects of situated cognition on academic performance as well the research on academic self-efficacy as a predictor of scholarly success

In this study teaching reciprocal teaching using an instructional method based on situated cognition proved to be effective in the transfer of information to the RTT Students that learned reciprocal teaching via the situated cognition method of instruction performed better than did the students in the lecture discussion method of instruction on the applied section The effect size of the applied section of the RTT was 1 77 Thus there was a difference of over four points between the means of the situated cognition group and the lecture-discussion group with the lecture-discussion groups mean being less than half correct Due to the nature of the items that comprised the applied section the students in the situated cognition method were more successful at transferring what they had learned about reciprocal teaching to 15 novel real-life scenarios The effect size for the factual section was 49 which compared to the applied section is much smaller Thus the most important finding of this study with regards to knowledge acquisition and transfer is that the method that is most effective for acquisition and transfer is directly related to the type of knowledge to be learned and later transferred Acquisition of facts or of a knowledge base by students was not shown to require the use of a situated approach however the acquisition of information by students that needed application was shown to be more effectively applied using a situated approach to instruction

Although intrinsic motivation did not prove to be a significant predictor of students performance on the factual section of the RTT perhaps the marginally significant level on the applied section could warrant further research Conceivably the length of the treatment may be a factor that influences whether intrinsic motivation will effect performance Thus studying intrinsic motivation using a treatment in which the student is engaged in learning over time may lead to significant effects for the applied section of the RTT Nevertheless considering the findings of this study situated cognition as a method of instruction in conjunction with academic self-efficacy as a predictor of scholarly performance are worthy of further consideration

Future Directions for Research

Given the positive results of this study s findings regarding learning and transfer using the situated cognition method of instruction employing such a method versus the lecture-method of instruction to study reciprocal teaching using a delayed measure of transfer would serve to explore long-term transfer to the RTT Also increasing the amount of time in which students are engaged in the learning and transfer of reciprocal teaching may also allow for the possibility of intrinsic motivation being a predictor for students academic performance on the applied section of the RTT as reviewed research would suggest

Furthermore, future replications of this study need to include testing in the simulated environment provided in this study as well as in the real-life environment in which reciprocal teaching is used. Future research should also investigate the effects of the situated cognition method of instruction and the lecture-discussion method of instruction, along with self-efficacy as a predictor of education students' performance using a different type of transfer measure than the RTT (perhaps longer or consisting of multiple parts) to measure reciprocal teaching.

Similarly, further research should investigate the effects of both of the instructional methods and using academic efficacy as a predictor for performance using a different subject area and a different population. Given that academic efficacy was a predictor of performance on the RTT, further research on situated cognition, learning and transfer should also explore the role of efficacy in learning. Specifically, since this study did not find an interaction between performance on each section of the RTT, academic efficacy, and intrinsic motivation, there is reason given to pursue this relationship over a longer period of time and using more subjects. Most importantly, further research should explore the kinds of tasks and outcome measures for which instructional methods based on situated cognition may be most suited and most beneficial.

In sum, because the literature indicates that little research has examined the relationship between situated cognition, academic efficacy, intrinsic motivation and its effects on students' learning of an instructional method, studies pertaining to this area should be replicated using different instructional methods a different population, and different subject areas

APPENDIX A
SITUATED-COGNITION GROUP READING

Directions The objective is to perform the reciprocal teaching instructional strategy Please begin by selecting one student in your group to read the first paragraph This student is considered to be taking the role of the "teacher" While the reader reads the paragraph out loud, the rest of the students in the group should be reading silently along At the end of each paragraph the student that just read ("the teacher") will either state their summary of the paragraph or ask a question to be answered by another student Following the summary or the question the student that just read ("the teacher") will ask someone else in the group to make a prediction, to generate a question or to analyze After the student chosen has had a chance to answer any of the other students in the group may ask a question make a prediction or analyze The student that just read ("the teacher") then chooses another reader to be the next teacher and read the next paragraph the entire procedure is then repeated

Reading Passage

The History of Education education denotes the methods by which a society hands down from one generation to the next its knowledge culture and values The individual being educated develops physically mentally emotionally morally and socially The work of education may be accomplished by an individual teacher the family a church or any other group in society Formal education is usually carried out by the school the agency that employs men and women who are professionally trained for this task

Early Educational Systems

The oldest known systems of education in history had two characteristics in common they taught religion and they promoted the traditions of the people In ancient Egypt the temple schools taught not only religion but also the principles of writing the sciences mathematics and architecture Education in ancient China however stressed philosophy poetry and religion in accord with the teachings of Confucius Lao tzu and other philosophers

Basic Traditions of the Western World

The educational systems in the countries of the Western world were based on the religious tradition of the Jews both in the original form and in the version modified by Christianity Their views were based on the Bible and the Talmud as the basic sources of information about the aims and methods of education A second tradition was derived from education in ancient Greece where Socrates Plato Aristotle and Isocrates were the influential thinkers on education The Greek aim was to prepare intellectually well-rounded young people to take leading roles in the activities of the state and of society

Roman education after an initial period of intense loyalty to the old religious and cultural traditions approved the appointment of Greeks as teachers of Roman youth both in Rome and in Athens The Romans considered the teaching of rhetoric and oratory important. The proper training of the orator was to be organized around the study of language literature philosophy and the sciences with particular attention to the development of character Roman education transmitted to the Western world the Latin language classical literature engineering law, and the administration and organization of government

The Middle Ages

In Western Europe following the revivals of learning that took place in the 9th century Al Azhar University was founded in Cairo Soon after several universities were opened in Italy Spain and other countries with students traveling freely from one institution to another The northern universities such as those in Paris and in Oxford and Cambridge England were administered by the professors the southern universities such as the one in Bologna Italy were run by students Medieval education also took the form of apprenticeship training in some craft or service As a rule however education was the privilege of the upper classes and most members of the lower classes had no opportunity for formal learning

Humanism and the Renaissance

The Renaissance was the period in which education of boys in mathematics and the classics became widespread The spirit of education during the Renaissance was best exemplified by the schools established by the Italian educators Vittorino da Feltre in Mantua (1425) and by Guarino Veronese These educators introduced into their schools such subjects as the sciences history geography music and physical training These immensely successful schools influenced the work of other educators and indeed served as examples for educators more than 400 years later

Growth of the Sciences in the 17th Century

In the 17th century the scientific subjects were introduced into the courses of study in the universities and the secondary schools and the greatest educator was Jan Komensky better known by his Latin name Comenius In his *Great Didactic* (1628-32 trans 1931) he emphasized the furthering of the educational process by stimulating the pupil's interest and by teaching with reference to concrete things rather than to verbal descriptions of them His educational objective can be summed up in the phrase on the title page of the *Great Didactic*, "teaching thoroughly all things to all men " Comenius's efforts on behalf of universal education earned him the title of Teacher of Nations

The 18th Century

During the 18th century a school system was established in Prussia formal education began in Russia under Peter the Great and his successors schools and colleges developed in Colonial America and educational reforms resulted from the French Revolution Late in the century the Sunday school movement was inaugurated in England by the philanthropist and newspaper publisher Robert Raikes for the benefit of poor and working children During this same period the monitorial method of teaching was introduced Hundreds of children could be taught by one teacher with the aid of pupil monitors or assistants Both plans laid the foundation for the possibility of mass education

The foremost educational theorist of the 18th century was Jean Jacques Rousseau In his book *Émile* (1762) he insisted that children should be treated as children rather than as miniature adults and that the personality of the individual must be cultivated Among his concrete suggestions were the teaching of reading at a later age and the study of nature and society by direct observation His radical proposals however were to be applied to boys only girls were to receive a conventional education

The 19th Century and the Rise of National School Systems

The 19th century was the period when national school systems were organized in England France Germany Italy and other European countries The newly liberated nations of Latin America especially Argentina and Uruguay looked to Europe and the United States for models for their schools. Japan which had just emerged from its traditional isolation and was trying to Westernize its institutions drew on the experience of several European countries and the United States in the establishment of a modern school and university system

The 20th Century Child-Centered Education

At the beginning of the century education was greatly influenced by progressive education a system of teaching based on the needs and potentials of the child rather than on the needs of society or the precepts of religion It had existed in idea and in fact under other names throughout history and had appeared in varying forms in different parts of the world Especially influential in the U S and even on a worldwide scale was the American philosopher and educator John Dewey The activity program which was derived from the theories of Dewey stressed the educational development of the child in terms of individual needs and interests It became the major method of instruction for many years in elementary schools of the U S and other countries

Literary source[1]

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[1] "Education History of " *Microsoft® Encarta® 96 Encyclopedia* © 1993-1995 Microsoft Corporation All rights reserved © Funk & Wagnalls Corporation All rights reserved

APPENDIX B

LECTURE-DISCUSSION GROUP READING

According to Eggen & Kauchak (1999) most children have problems with inconsistencies or contradictions found in passages most problems are consistent with developmental milestones However some children have problems with reading comprehension that are not consistent with development.

- Most sixth-graders can explain why they reread an unclear passage second-graders can't
- When students are told to look for inconsistencies sixth-graders performance increased but third-graders didn't
- Children as young as third grade can be taught to identify inconsistencies when provided with examples
- Skilled readers allocate more of their processing time to inconsistent than to consistent parts of passages

Metacognition generally develops over time but the process can be facilitated by effective instruction Cognitive processes that good readers and successful learners often use especially when reading challenging material strategies such as (a) identifying the main ideas classifying --the gist of what is read (b) monitoring comprehension by asking questions to ensure their understanding of the material (c) take steps to clarify what they are reading if it is not understood (d) and anticipating what they are likely to read next In contrast, poor readers—those who learn little from textbooks and other things they read—rarely use such strategies For example many students cannot adequately summarize a typical fifth-grade textbook until high school or even junior college (Brown & Palincsar 1984) Clearly many students do not easily acquire the ability to read for learning

Reciprocal teaching is a teaching strategy that is specifically designed to help students that are "poor comprehenders" of text to learn to monitor their comprehension (Palincsar & Brown 1986) Reciprocal teaching is an approach to teaching reading thorough which students learn effective reading-to-learn strategies by observing and modeling their teacher and fellow students When using this strategy students take turns leading dialogues that combine clarifying summarizing predicting and question generating into a coherent sequence The teacher and several students meet in a group to read a piece of text stopping to apply to each paragraph the four metacognitive strategies summarizing predicting question-generation and clarification After each segment the teacher pauses to discuss the segment Students in a reciprocal teaching teacher pauses to discuss the segment. Students in a reciprocal teaching situation take a much more active role in their own teaching and learning than is true for more traditional reading groups. When a reciprocal teaching group first begins, the classroom teacher takes a major responsibility for teaching the students. In subsequent sessions, this "teaching" responsibility is gradually turned over to the students as they become increasingly capable of using the same process to help themselves and one another learn. Theoretically, reciprocal teaching provides a means through which students first see these comprehension strategies modeled by the teacher, and then having opportunities to practice, learners internalize the strategies to the point where they use them automatically when they read. Eventually, students read and discuss a text almost independently of the teacher, working together to construct its meaning and checking one another for comprehension and possible misunderstandings (Palincsar & Brown, 1984).

The designers of the strategy emphasize the importance of explicitly teaching it. In doing so, the teacher first can describe the strategy and then model each step. The students practice the skill and receive feedback. As they gradually internalize the strategy, more responsibility is transferred to them as they assume the role of the teacher when new passages are read and discussed. The strategy can be implemented in short sessions of thirty minutes over a period of time. Reciprocal teaching may take as many as twenty consequent sessions in order for students to show improvement in their reading comprehension.

Reciprocal teaching is one of the most thoroughly developed and researched study strategies, and it has proven successful with both high and low achievers (Rosenshine & Meister, 1994). However, reciprocal teaching was designed to be used with six to eight students at a time, as opposed to class-size groups, and parts of the strategy are difficult to implement in different content areas.

Please answer the following questions after having read the passage.

1. In your opinion, what are the strengths of reciprocal teaching?
2. In your opinion, what are the weaknesses of reciprocal teaching?
3. When would one use reciprocal teaching? Why?
4. How would you know that reciprocal teaching is effective?
5. How would you know that reciprocal teaching is ineffective?
6. In your opinion are there any problems implementing reciprocal teaching? If so what are they? Why do you think these are problems?
7. What may be some difficulties in implementing reciprocal teaching in an elementary classroom? In a middle school classroom? In a high school classroom?

8 In your opinion is reciprocal teaching an effective way to increase student s reading comprehension? Why or why not?
9 Would you feel comfortable employing reciprocal teaching?

Please wait until everyone in your group has completed all the questions before beginning discussion

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BIOGRAPHICAL SKETCH

Patricia Pulido Willems whose family moved to Miami when she entered the third grade is a native of Venezuela After graduating from Miami Killian Senior High School, she decided to attend the University of Florida for her undergraduate education At the University of Florida she pursued a Bachelor of Arts degree in sociology which she attained in December of 1996 Independent research conducted as part of her undergraduate career lead her to become interested in the education of teachers In particular preservice teachers Therefore it was clear that she would seek a graduate degree in education in which she could further explore her interest in the teaching profession. She received a master's degree in education from the University of Florida College of Education in December of 1997 In exploring education her main focus became learning and individual differences in the area of situated cognition This focus would later be the focus of her dissertation and of future research Patricia Willems is presently an Assistant Professor of Educational Psychology at Florida Atlantic University in Davie Florida where she continues her research on situated cognition in education

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate in scope and quality as a dissertation for the degree of Doctor of Philosophy

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